UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

UNITED STATES OF AMERICA, Plaintiff, v. SAFEWAY INC., Defendant.	Case No. C-13-4086

CONSENT DECREE

TABLE OF CONTENTS

WHEREAS, Plaintiff, the United States of America, on behalf of the United States Environmental Protection Agency ("EPA"), has filed a Complaint in this action concurrently with this Consent Decree alleging that Defendant Safeway Inc. ("Safeway") violated Section 608 of the Clean Air Act ("CAA" or the "Act"), 42 U.S.C. § 7671g, and the commercial refrigerant repair and recordkeeping regulations at 40 C.F.R. Part 82, Subpart F, §§ 82.150-82.169 (Recycling and Emissions Reduction);

WHEREAS, the Complaint alleges that Safeway has failed to comply with the leak repair and/or recordkeeping requirements of 40 C.F.R. Part 82, Subpart F, at some or all of the grocery stores identified in Appendix A to this Consent Decree;

WHEREAS, on November 1, 2007, EPA issued an information request to Safeway pursuant to Section 114 of the Act, 42 U.S.C. § 7414, regarding the repair of leaks from commercial refrigeration appliances normally containing more than 50 pounds of refrigerant that includes a class I or class II ozone-depleting substance, and EPA subsequently narrowed such request to cover 46 stores in California, Nevada, and Hawaii;

WHEREAS, on April 21, 2008, and July 1, 2010, Safeway submitted its responses to EPA's information request, including approximately 10,000 pages of equipment records;

WHEREAS, the allegations in the Complaint are based on EPA's analysis of the information contained in Safeway's responses to EPA's information request;

WHEREAS, Safeway's Corporate-Wide Average Leak Rate for the calendar year 2012 was 25 percent;

WHEREAS, Safeway disputes the allegations in the Complaint and does not admit any liability to the United States arising out of the transactions or occurrences alleged in the Complaint;

WHEREAS, the Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation between the Parties and that this Consent Decree is fair, reasonable, and in the public interest;

NOW, THEREFORE, before the taking of any testimony, without the adjudication of or admission of any issue of fact or law except as provided in Section I, and with the consent of the

Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

I. JURISDICTION, VENUE, AND NOTICE

1. This Court has jurisdiction over the subject matter of this action and over the Parties pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), and 28 U.S.C. §§ 1331, 1345, and 1355. Venue lies in this district pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), and 28 U.S.C. §§ 1391(b) and 1395(a), because some of the alleged violations in the Complaint occurred in, and Safeway's principal place of business is located in, this judicial district. For purposes of this Decree, or any action to enforce this Decree, Safeway consents to the Court's jurisdiction over this Decree and any such action and over Safeway and consents to venue in this district.

2. The United States has given notice of the commencement of this action to the applicable air pollution control agencies as required by Section 113(b) of the Act, 42 U.S.C. § 7413(b).

II. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States, and upon Safeway and any successors, assigns, or other entities or persons otherwise bound by law.

4. Safeway shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree.

5. At least 30 days prior to any transfer of ownership or operation of a retail division that includes one or more Stores covered by this Consent Decree, Safeway shall provide a copy of this Consent Decree to the proposed transferee. At least 15 days prior to the transfer, Safeway shall provide written notice of the prospective transfer to the United States in accordance with Section XV of this Decree (Notices), and shall submit to the United States a plan to ensure that (a) the Refrigerant Compliance Management System, or another refrigerant compliance management system approved by EPA, continues to be implemented at all stores in such retail division; and (b) the terms of Paragraph 16 of this Decree (Emissions Reductions at Highest-Emission Stores) are implemented notwithstanding the transfer, provided that, in place of

Highest-Emission Stores that are transferred, Safeway may achieve reductions required under Paragraph 16(b) from Stores that are not transferred. Any attempt to transfer ownership or operation of a retail division without complying with this Paragraph constitutes a violation of this Decree.

6. In any action to enforce this Consent Decree, Safeway shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

III. OBJECTIVES

7. The objectives of this Consent Decree are: (a) to further the goals of Subchapter VI of the Act, 42 U.S.C. §§ 7671-7671q, and EPA's commercial refrigerant repair and recordkeeping regulations at 40 C.F.R. Part 82, Subpart F, and (b) to resolve the civil claims of the United States as provided in Section XIII (Effect of Settlement/Reservation of Rights).

IV. DEFINITIONS

8. Terms used in this Consent Decree that are defined in the Act or in regulations promulgated pursuant to the Act shall have the meanings assigned to them in the Act or such regulations as of the date of lodging of this Decree, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

a. "Appliance" shall have the definition provided in 40 C.F.R. § 82.152;

b. "Complaint" shall mean the complaint filed by the United States in this action;

c. "Consent Decree" or "Decree" shall mean this Decree and all appendices attached hereto (listed in Section XXIV);

d. "Corporate-Wide Average Leak Rate" for a given calendar year shall mean the total number of pounds of Refrigerant added to all Covered Appliances at all Stores during the period of Safeway's ownership or operation in such calendar year divided by the total Full Charge of all Covered Appliances at all Stores during such calendar year. For purposes of this subparagraph, the "total number of pounds of Refrigerant added to all Covered Appliances"

shall not include (i) the initial charge of Refrigerant added to any new Covered Appliance; (ii) where Refrigerant has been recovered from an existing Covered Appliance in compliance with 40 C.F.R. § 82.156, the amount of any Refrigerant used to recharge such Covered Appliance, up to the amount of Refrigerant recovered; or (iii) the amount of any Refrigerant added to a Covered Appliance to replace Refrigerant released as the result of an event that is determined by EPA or the Court to constitute a force majeure event under Section X of this Consent Decree (Force Majeure). For purposes of this subparagraph, the "total Full Charge of all Covered Appliances" shall include the Full Charge of any appliance that was at one time a Covered Appliance and that, after the Effective Date of the Consent Decree, has been retrofitted to use, or replaced by an appliance that uses, refrigerant that does not consist in part or whole of a class I or class II ozone-depleting substance, or that has been retired.

e. "Covered Appliance" shall mean a commercial refrigeration Appliance with a Full Charge of more than 50 pounds of Refrigerant;

f. "Day" shall mean a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day;

g. "Effective Date" shall have the definition provided in Section XVI;

h. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States;

i. "Full Charge" shall have the definition provided in 40 C.F.R. § 82.152;

j. "Highest-Emission Stores," for a given calendar year, shall mean those Stores with Storewide Average Leak Rates in the 90th percentile or above out of all Stores for such calendar year. To determine which Stores are Highest-Emission Stores, Safeway shall (i) prepare a list of all Stores for that calendar year; (ii) calculate the Storewide Average Leak Rate for each Store; (iii) rank each Store by Storewide Average Leak Rate, from highest to lowest; and (iv) identify those Stores with Storewide Average Leak Rates in the 90th percentile or above;

k. "Paragraph" shall mean a portion of this Decree identified by an Arabic

numeral or an upper or lower case letter;

l. "Parties" shall mean the United States and Safeway;

m. "Refrigerant" shall have the definition provided in 40 C.F.R. § 82.152;

n. "Refrigerant Compliance Management System" shall mean the system described in a Refrigerant Compliance Plan (attached as Appendix B to this Consent Decree) prepared by Safeway and approved by EPA that is directed at assuring compliance with 40 C.F.R. Part 82, Subpart F, at the Stores, and any subsequent amendments or changes to such system made in accordance with Paragraph 13 of this Consent Decree;

o. "Safeway" shall mean Defendant Safeway Inc.;

p. "Section" shall mean a portion of this Decree identified by a Roman numeral;

q. "Store" shall mean any grocery store owned or operated by Safeway in the United States as of the date in question that contains one or more Covered Appliances, but shall not include any grocery store in Safeway's Dominick's Division;

r. "Storewide Average Leak Rate" for a given Store and calendar year shall mean the total number of pounds of Refrigerant added to all Covered Appliances at such Store during the period of Safeway's ownership or operation in such calendar year divided by the total Full Charge of all Covered Appliances at such Store during such calendar year. For purposes of this subparagraph, the "total number of pounds of Refrigerant added to all Covered Appliances" shall not include (i) the initial charge of Refrigerant added to any new Covered Appliance; (ii) where Refrigerant has been recovered from an existing Covered Appliance in compliance with 40 C.F.R. § 82.156, the amount of any Refrigerant used to recharge such Covered Appliance, up to the amount of Refrigerant recovered; or (iii) the amount of any Refrigerant added to a Covered Appliance to replace Refrigerant released as the result of an event that is determined by EPA or the Court to constitute a force majeure event under Section X of this Consent Decree (Force Majeure). For purposes of this subparagraph, the "total Full Charge of all Covered Appliances" shall include the Full Charge of any appliance that was at one time a Covered Appliance and that, after the Effective Date of the Consent Decree, has been retrofitted

to use, or replaced by an appliance that uses, refrigerant that does not consist in part or whole of a class I or class II ozone-depleting substance, or that has been retired; and

s. "United States" shall mean the United States of America, acting on behalf of EPA.

V. CIVIL PENALTIES

9. Within 30 days after the Effective Date of this Consent Decree, Safeway shall pay the sum of $600,000 as civil penalties.

10. Safeway shall pay the civil penalties due by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice in accordance with written instructions to be provided to Safeway after the Effective Date by the Financial Litigation Unit of the U.S. Attorney's Office for the Northern District of California. At the time of payment, Safeway shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalties owed pursuant to the Consent Decree in United States v. Safeway Inc., and shall reference the civil action number and DOJ case number 90-5-2-1-09644, to the United States in accordance with Section XV of this Decree (Notices); by email to acctsreceivable.CINWD@epa.gov; and by mail to:

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, OH 45268

11. Safeway shall not deduct any penalties paid under this Consent Decree pursuant to this Section or Section IX (Stipulated Penalties) in calculating its federal income tax.

VI. COMPLIANCE REQUIREMENTS

A. Refrigerant Compliance Management System

12. Starting no later than 30 days after the Effective Date, Safeway shall implement the Refrigerant Compliance Management System at all Stores owned or operated by Safeway.

13. Prior to implementing any amendments or changes to its Refrigerant Compliance Management System, Safeway shall submit a revised Refrigerant Compliance Plan to EPA along with a letter identifying the amendments or changes. Safeway shall implement its amended or changed Refrigerant Compliance Management System unless and until EPA notifies Safeway in

writing that it disapproves such amendments or changes and provides written comments. Within 30 days of receiving EPA's written notification, Safeway shall either (i) revise the Refrigerant Compliance Plan consistent with EPA's written comments and submit the revised Refrigerant Compliance Plan to EPA, or (ii) invoke Dispute Resolution under Section XI of this Consent Decree.

B. Corporate-Wide Leak Rate Reduction

14. Safeway shall achieve a Corporate-Wide Average Leak Rate that is at or below 18 percent for the calendar year 2015.

15. If Safeway fails to achieve a Corporate-Wide Average Leak Rate that is at or below 18 percent for the calendar year 2015 in accordance with Paragraph 14, Safeway shall take the following measures:

a. Safeway shall pay stipulated penalties pursuant to Section IX of this Consent Decree.

b. By March 1, 2016, Safeway shall submit to EPA a proposed Corrective Action Plan for approval pursuant to this Consent Decree. The proposed Corrective Action Plan shall include a description of all actions taken or to be taken to ensure that Safeway achieves a Corporate-Wide Average Leak Rate that is at or below 18 percent for the calendar year 2016, and, with respect to actions not already completed, the schedule for their implementation.

c. EPA shall, in writing, either approve the proposed Corrective Action Plan or disapprove it and provide written comments. Within 30 days of receiving EPA's written comments, Safeway shall either (i) revise the Corrective Action Plan consistent with EPA's written comments and submit the revised Corrective Action Plan to EPA for final approval, or (ii) invoke Dispute Resolution under Section XI of this Consent Decree. To the extent the proposed Corrective Action Plan requires action prior to receipt of EPA's approval or disapproval, Safeway shall implement the proposed Corrective Action Plan in accordance with the schedule set forth therein until EPA approves a Corrective Action Plan or a Corrective Action Plan is completed pursuant to Dispute Resolution.

d. Upon receipt of EPA's final approval of the Corrective Action Plan, or

upon completion of the Corrective Action Plan pursuant to Dispute Resolution, Safeway shall implement the Corrective Action Plan in accordance with the schedule set forth therein.

e. Safeway shall achieve a Corporate-Wide Average Leak Rate that is at or below 18 percent for the calendar year 2016.

f. If Safeway fails to achieve a Corporate-Wide Average Leak Rate that is at or below 18 percent for the calendar year 2016, Safeway shall continue to take the measures set forth in Paragraph 15 each subsequent year until it achieves a Corporate-Wide Average Leak Rate that is at or below 18 percent for a calendar year.

C. Emissions Reductions at Highest-Emission Stores

16. In calendar years 2013, 2014, and 2015, Safeway shall take the following steps to achieve a reduction in the aggregate Refrigerant use at its Highest-Emission Stores:

a. Within 60 days after the Effective Date of the Consent Decree, and no later than March 1 of each year after the year of the Effective Date, Safeway shall (i) identify its Highest-Emission Stores for the prior calendar year (the "baseline year"), and (ii) calculate the total number of pounds of Refrigerant added during the baseline year to all Covered Appliances at such Highest-Emission Stores.

b. During the calendar year after the baseline year (the "target year"), Safeway shall achieve a reduction of at least 10 percent in the total number of pounds of Refrigerant added to all Covered Appliances at the baseline year's Highest-Emission Stores.

c. In calculating the total number of pounds of Refrigerant added during the baseline year and the target year, Safeway shall not include (i) the initial charge of Refrigerant added to any new Covered Appliance; (ii) where Refrigerant has been recovered from an existing Covered Appliance in compliance with 40 C.F.R. § 82.156, the amount of any Refrigerant used to recharge such Covered Appliance, up to the amount of Refrigerant recovered; or (iii) the amount of any Refrigerant added to a Covered Appliance to replace Refrigerant released as the result of an event that is determined by EPA or the Court to constitute a force majeure event under Section X of this Consent Decree (Force Majeure).

17. If, during any target year, Safeway fails to comply with Paragraph 16(b), Safeway

shall take the following measures:

a. Safeway shall pay stipulated penalties pursuant to Section IX of this Consent Decree.

b. By March 1 of the year after the target year, Safeway shall submit to EPA a proposed Corrective Action Plan for approval pursuant to this Consent Decree. The proposed Corrective Action Plan shall include a description of all actions taken or to be taken to ensure that Safeway, during the calendar year after the target year, achieves a reduction of at least 10 percent in the total number of pounds of Refrigerant added to all Covered Appliances at the baseline year's Highest-Emission Stores, and, with respect to actions not already completed, the schedule for their implementation.

c. EPA shall, in writing, either approve the proposed Corrective Action Plan or disapprove it and provide written comments. Within 30 days of receiving EPA's written comments, Safeway shall either (i) revise the Corrective Action Plan consistent with EPA's written comments and submit the revised Corrective Action Plan to EPA for final approval, or (ii) invoke Dispute Resolution under Section XI of this Consent Decree. To the extent the proposed Corrective Action Plan requires action prior to receipt of EPA's approval or disapproval, Safeway shall implement the proposed Corrective Action Plan in accordance with the schedule set forth therein until EPA approves a Corrective Action Plan or a Corrective Action Plan is completed pursuant to Dispute Resolution.

d. Upon receipt of EPA's final approval of the Corrective Action Plan, or upon completion of the Corrective Action Plan pursuant to Dispute Resolution, Safeway shall implement the Corrective Action Plan in accordance with the schedule set forth therein.

e. Safeway shall, during the calendar year after the target year, achieve a reduction of at least 10 percent in the total number of pounds of Refrigerant added to all Covered Appliances at the baseline year's Highest-Emission Stores.

18. Safeway shall continue to take the measures set forth in Paragraph 17 each subsequent year until, during a calendar year, it achieves a reduction of at least 10 percent in the total number of pounds of Refrigerant added to all Covered Appliances at the baseline year's

Highest-Emission Stores.

VII. PARTICIPATION IN RECOGNITION PROGRAMS

19. Safeway shall not seek partnership in any federal or state recognition program relating to ozone-depleting substances, including EPA's GreenChill Advanced Refrigeration Partnership, until termination of this Consent Decree. This Paragraph shall not be construed to prohibit Safeway from: (i) exchanging data or information with or through any such recognition program; and/or (ii) seeking certification for newly constructed or significantly remodeled stores.

20. Safeway shall not at any time use or rely on measures taken in order to comply with the obligations of Section VI of this Consent Decree, or on any reduction in its Corporate-Wide Average Leak Rate or any Storewide Average Leak Rate achieved pursuant to this Consent Decree, as the basis for participation in any federal or state recognition program.

VIII. REPORTING REQUIREMENTS

21. Within 60 days after the Effective Date of the Consent Decree, and no later than March 1 of each year after the year of the Effective Date, continuing until the Parties have submitted for the Court's approval a joint stipulation terminating the Consent Decree pursuant to Paragraph 73, Safeway shall submit to the United States a Compliance Report that includes the following information for the prior calendar year:

a. a list of all Stores, specially noting all openings and closings;

b. the Full Charge, in pounds, of each Covered Appliance at each Store;

c. the number of pounds of Refrigerant added to each Covered Appliance at each Store;

d. the Storewide Average Leak Rate for each Store;

e. the Corporate-Wide Average Leak Rate;

f. identification of the Highest-Emission Stores and their Storewide Average Leak Rates;

g. the total number of pounds of Refrigerant added to all Covered Appliances at the Highest-Emission Stores identified in such Compliance Report;

h. the total number of pounds of Refrigerant added to all Covered Appliances

at the Highest-Emission Stores identified in the Compliance Report covering the calendar year preceding the prior calendar year (not required for Safeway's initial Compliance Report);

i. a statement identifying whether Safeway met the requirement for emissions reductions at Highest-Emission Stores set forth in Paragraph 16 (not required for Safeway's initial Compliance Report);

j. a statement identifying whether Safeway met the requirement for emissions reductions at Highest-Emission Stores set forth in Paragraph 17(e) or 18, as applicable (not required for Safeway's initial two Compliance Reports);

k. a certification that Safeway has complied with the Refrigerant Compliance Plan during the prior calendar year, or a description of all incidences of noncompliance with the Refrigerant Compliance Plan during the prior calendar year and a certification that Safeway has otherwise complied with the Refrigerant Compliance Plan (not required for Safeway's initial Compliance Report); and

l. an affirmative statement regarding Safeway's compliance or noncompliance with 40 C.F.R. Part 82, Subpart F, at the Stores during the prior calendar year (not required for Safeway's initial Compliance Report).

22. Data in each Compliance Report submitted by Safeway under this Section shall be in Microsoft Excel or equivalent spreadsheet form. Safeway shall submit each Compliance Report to the United States in electronic form in accordance with the requirements of Section XV of this Consent Decree.

23. Each Compliance Report submitted by Safeway under this Section shall be signed by a Safeway official and shall include the following certification:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

24. Whenever any violation of this Consent Decree or any other event affecting Safeway's performance under this Decree, or the performance of its Stores, may pose an immediate threat to the public health or welfare or the environment, Safeway shall notify EPA orally or by electronic or facsimile transmission as soon as possible, but no later than 24 hours after Safeway first knew of the violation or event. Notification to an applicable national reporting hotline, such as the National Response Center, shall suffice to meet this requirement. This procedure is in addition to the requirements set forth in Paragraphs 21 through 23.

25. The reporting requirements of this Consent Decree do not relieve Safeway of any reporting obligations required by the Clean Air Act or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

26. Any information provided pursuant to this Consent Decree may be used by the United States in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

IX. STIPULATED PENALTIES

27. Safeway shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below, unless excused under Section X (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

28. Payment of Civil Penalties. If Safeway fails to pay the civil penalties required to be paid under Section V of this Decree (Civil Penalties) when due, Safeway shall pay a stipulated penalty of $2,500 per day for each day that the payment is late.

29. Refrigerant Compliance Management System. For each failure to implement the Refrigerant Compliance Management System at a Store as required by Paragraph 12, Safeway shall pay a stipulated penalty of $500 per violation per Store per day.

30. Corporate-Wide Average Leak Rate. If Safeway fails to achieve a Corporate-Wide Average Leak Rate that is at or below 18 percent for the calendar year 2015 in accordance

with Paragraph 14, Safeway shall: (a) pay a stipulated penalty of $100,000, and (b) pay a stipulated penalty of $150,000 for each subsequent calendar year until Safeway achieves a Corporate-Wide Average Leak Rate that is at or below 18 percent.

31. Emissions Reductions at Highest-Emission Stores. If, during any target year, Safeway fails to achieve a reduction of at least 10 percent in the total number of pounds of Refrigerant added to all Covered Appliances at the baseline year's Highest-Emission Stores as required by Paragraph 16(b), Safeway shall: (a) pay a stipulated penalty of $25,000 per year, and (b) pay a stipulated penalty of $40,000 for each calendar year after the target year in which Safeway fails to achieve a reduction of at least 10 percent in the total number of pounds of Refrigerant added to all Covered Appliances at the baseline year's Highest-Emission Stores.

32. Reporting Requirements. For each failure to comply with the requirements of Section VIII of this Consent Decree within the specified time schedules established by this Decree, Safeway shall pay a stipulated penalty of $1,000 per violation per day.

33. Stipulated penalties under this Section shall begin to accrue on the day after performance is due or on the day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

34. Safeway shall pay any stipulated penalty within 30 days of receiving the United States' written demand.

35. The United States may, in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

36. Stipulated penalties shall continue to accrue as provided in Paragraph 33 during any Dispute Resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to the Court, Safeway shall pay accrued penalties determined to be owing, together with interest, to the United States within 30 days of the effective date of the agreement or the receipt of EPA's decision or order.

b. If the dispute is appealed to the Court and the United States prevails in

whole or in part, Safeway shall pay all accrued penalties determined by the Court to be owing, together with interest, within 60 days of receiving the Court's decision or order, except as provided in subparagraph (c), below.

c. If any Party appeals the District Court's decision, Safeway shall pay all accrued penalties determined to be owing, together with interest, within 15 days of receiving the final appellate court decision.

37. Safeway shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 10, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

38. If Safeway fails to pay stipulated penalties according to the terms of this Consent Decree, Safeway shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States from seeking any remedy otherwise provided by law for Safeway's failure to pay any stipulated penalties.

39. Subject to the provisions of Section XIII of this Consent Decree (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Decree shall be in addition to any other rights, remedies, or sanctions available to the United States for Safeway's violation of this Decree or applicable law. Where a violation of this Consent Decree is also a violation of Section 608 of the Act or 40 C.F.R. Part 82, Subpart F, Safeway shall be allowed a credit, for any stipulated penalties paid, against any statutory penalties imposed for such violation.

X. FORCE MAJEURE

40. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Safeway, of any entity controlled by Safeway, or of Safeway's contractors, that impedes – i.e., delays or prevents – the performance of any obligation under this Consent Decree despite Safeway's best efforts to fulfill the obligation. The requirement that Safeway exercise "best efforts to fulfill the obligation" includes using best

efforts to anticipate any potential force majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting impedance to the greatest extent possible. "Force Majeure" does not include Safeway's financial inability to perform any obligation under this Consent Decree.

41. If any event occurs or has occurred that may impede the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Safeway shall provide notice orally or by electronic or facsimile transmission to EPA, within seven days of when Safeway first knew that the event might cause an impedance. Within 30 days thereafter, Safeway shall provide in writing to EPA an explanation and description of the reasons for the impedance; the duration or anticipated duration of the impedance; all actions taken or to be taken to prevent or minimize the impedance; a schedule for implementation of any measures taken or to be taken to prevent or mitigate the impedance or the effect of the impedance; Safeway's rationale for attributing such impedance to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Safeway, such event may cause or contribute to an endangerment to public health, welfare or the environment. Safeway shall include with any notice all available documentation supporting the claim that the impedance was attributable to a force majeure. Failure to comply with the above requirements shall preclude Safeway from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional impedance caused by such failure. Safeway shall be deemed to know of any circumstance of which Safeway, any entity controlled by Safeway, or Safeway's contractors knew or should have known.

42. If EPA agrees that the impedance or anticipated impedance is attributable to a force majeure event, EPA will extend the time for performance of the obligations under this Consent Decree that are affected by the force majeure event for such time as is necessary to complete those obligations and/or reduce or waive stipulated penalties otherwise due under this Decree as a result of Safeway's failure to perform such obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Safeway in writing of its decision,

including the length of any extension for performance of the obligations affected by the force majeure event.

43. If EPA does not agree that the impedance or anticipated impedance has been or will be caused by a force majeure event, EPA will notify Safeway in writing of its decision.

44. If Safeway elects to invoke the dispute resolution procedures set forth in Section XI (Dispute Resolution), it shall do so no later than 30 days after receipt of EPA's notice. In any such proceeding, Safeway shall have the burden of demonstrating by a preponderance of the evidence that the impedance or anticipated impedance has been or will be caused by a force majeure event, that the duration of the impedance or the relief sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the impedance, and that Safeway complied with the requirements of Paragraphs 40 and 41, above. If Safeway carries this burden, the impedance at issue shall be deemed not to be a violation by Safeway of the affected obligation of this Consent Decree identified to EPA and the Court.

XI. DISPUTE RESOLUTION

45. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Safeway's failure to seek resolution of a dispute under this Section shall preclude Safeway from raising any such issue as a defense to an action by the United States to enforce any obligation of Safeway arising under this Decree.

46. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Safeway sends the United States a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 20 days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within 30 days after the conclusion of the informal negotiation period, Safeway invokes formal dispute resolution procedures as set forth below.

47. Formal Dispute Resolution. Safeway shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Safeway's position and any supporting documentation relied upon by Safeway.

48. The United States shall serve its Statement of Position within 30 days of receipt of Safeway's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on Safeway, unless Safeway files a motion for judicial review of the dispute in accordance with the following Paragraph.

49. Safeway may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XV of this Consent Decree (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within 30 days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Safeway's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

50. The United States shall respond to Safeway's motion within the time period allowed by the Local Rules of this Court. Safeway may file a reply memorandum, to the extent permitted by the Local Rules.

51. Standard of Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 47, Safeway shall bear the burden of demonstrating that its position complies with this Consent Decree and that it is entitled to relief under applicable principles of law. In their initial filings with the Court under Paragraphs 49 and 50, the Parties shall state their respective positions as to the applicable standard of law for resolving the dispute.

52. The invocation of dispute resolution procedures under this Section shall not, by

itself, extend, postpone, or affect in any way any obligation of Safeway under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 36. If Safeway does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section IX (Stipulated Penalties).

XII. INFORMATION COLLECTION AND RETENTION

53. The United States and its representatives, including attorneys, contractors, and consultants, shall have the right of entry into any Store covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

a. monitor the progress of activities required under this Consent Decree;

b. verify any data or information submitted to the United States in accordance with the terms of this Consent Decree;

c. obtain documentary evidence, including photographs and similar data; and

d. assess Safeway's compliance with this Consent Decree.

54. Until five years after the termination of this Consent Decree, Safeway shall retain, and shall instruct its contractors and agents to preserve, all documents, records, or other information (including documents, records, or other information in electronic form) necessary to demonstrate Safeway's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States, Safeway shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

55. At the conclusion of the information-retention period provided in the preceding Paragraph, Safeway shall notify the United States at least 90 days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States, Safeway shall deliver any such documents, records, or other information to EPA. Safeway may assert that certain documents, records, or other

information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If Safeway asserts such a privilege, it shall provide the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of each author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Safeway. However, no documents, records, or other information required to be created or generated under this Consent Decree shall be withheld on grounds of privilege.

56. Safeway may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that Safeway seeks to protect as CBI, Safeway shall follow the procedures set forth in 40 C.F.R. Part 2.

57. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal laws, regulations, or permits, nor does it limit or affect any duty or obligation of Safeway to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XIII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

58. This Consent Decree resolves the civil claims of the United States against Safeway for any violations of 40 C.F.R. §§ 82.156(i), 82.166(k), or 82.166(m) at the Stores arising out of facts and events that occurred prior to the date of lodging, including the civil claims of the United States for the violations alleged in the Complaint through the date of lodging.

59. The United States reserves all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 58. This Consent Decree shall not be construed to limit the rights of the United States to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal laws, regulations, or permit conditions, except as expressly specified in Paragraph 58.

60. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, or other appropriate relief relating to the Stores, Safeway shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 58.

61. This Consent Decree is not a permit, or a modification of any permit, under any federal, state, or local laws or regulations. Safeway is responsible for achieving and maintaining complete compliance with all applicable federal, state, and local laws, regulations, and permits; and Safeway's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that Safeway's compliance with any aspect of this Consent Decree will result in compliance with provisions of the Act, 42 U.S.C. § 7401 et seq., or with any other provisions of federal, state, or local laws, regulations, or permits.

62. This Consent Decree does not limit or affect the rights of Safeway or of the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Safeway, except as otherwise provided by law.

63. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XIV. COSTS

64. The Parties shall bear their own costs of this action, including attorney's fees, except that the United States shall be entitled to collect the costs (including attorney's fees) incurred in any judicial enforcement action necessary to collect any portion of the civil penalties or any stipulated penalties due but not paid by Safeway.

XV. NOTICES

65. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

For notifications, submissions, or communications to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611 Ben Franklin Station
Washington, DC 20044-7611
eescasemanagement.enrd@usdoj.gov
Re: DOJ No. 90-5-2-1-09644

and

Brian Riedel (riedel.brian@epa.gov)
Joel Jones (jones.joel@epa.gov)
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

For notifications, submissions, or communications to EPA:

Brian Riedel (riedel.brian@epa.gov)
Joel Jones (jones.joel@epa.gov)
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

For notifications, submissions, or communications to Safeway:

Valerie D. Lewis
Senior Corporate Counsel
Safeway Inc.
5918 Stoneridge Mall Road
Pleasanton, CA 94588
valerie.lewis@safeway.com

66. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided in Paragraph 22 or 65 of this Consent Decree.

67. Notices submitted pursuant to this Section shall be deemed submitted upon mailing or electronic mailing, as applicable, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XVI. EFFECTIVE DATE

68. The Effective Date of this Consent Decree shall be the date upon which this Decree is entered by the Court or a motion to enter the Decree is granted, whichever occurs first, as recorded on the Court's docket.

XVII. RETENTION OF JURISDICTION

69. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XI and XVIII, or effectuating or enforcing compliance with the terms of this Decree.

XVIII. MODIFICATION

70. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by the Parties. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court.

71. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XI of this Decree (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 51, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XIX. TERMINATION

72. After Safeway has completed the requirements of Section VI (Compliance Requirements) of this Consent Decree, has complied with all other requirements of this Decree, and has paid the civil penalties and any accrued stipulated penalties as required by this Decree, Safeway may serve upon the United States a Request for Termination, stating that Safeway has satisfied those requirements, together with all necessary supporting documentation.

73. Following receipt by the United States of Safeway's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Safeway has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States agrees that the Consent Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

74. If the United States does not agree that the Consent Decree may be terminated, Safeway may invoke Dispute Resolution under Section XI of this Decree. However, Safeway shall not seek Dispute Resolution of any dispute regarding termination, under Paragraph 47 of Section XI, until 60 days after service of its Request for Termination.

XX. PUBLIC PARTICIPATION

75. This Consent Decree shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Safeway consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified Safeway in writing that it no longer supports entry of the Decree.

XXI. SIGNATORIES/SERVICE

76. Each undersigned representative of Safeway and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

77. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Safeway agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXII. INTEGRATION

78. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Consent Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXIII. FINAL JUDGMENT

79. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and Safeway.

XXIV. APPENDICES

80. The following appendices are attached to and part of this Consent Decree:

"Appendix A" is the list of Stores as of the date of lodging of the Consent Decree.

"Appendix B" is the Refrigerant Compliance Plan.

Dated and entered this _____ day of _____, 20____.

_____

United States District Judge
Northern District of California

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Safeway Inc. (N.D. Cal.):

FOR PLAINTIFF UNITED STATES OF AMERICA:

ROBERT G. DREHER
Acting Assistant Attorney General
Environment and Natural Resources Division

MARK SABATH
Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, DC 20044-7611
(202) 514-1196

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Safeway Inc. (N.D. Cal.):

FOR PLAINTIFF UNITED STATES OF AMERICA:

SUSAN SHINKMAN, Director
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

PHILLIP BROOKS
Director, Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Safeway Inc. (N.D. Cal.):

FOR PLAINTIFF UNITED STATES OF AMERICA:

JARED BLUMENFELD
Regional Administrator
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

BRIAN P. RIEDEL
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region IX

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Safeway Inc. (N.D. Cal.):

FOR DEFENDANT SAFEWAY INC.:

Valerie D. Lewis

[NAME] Valerie D. Lewis
[Title] Assistant Vice President & Assistant Secretary

Agent authorized to accept service on behalf of above-signed party:

Corporation Service Company

[NAME]
[Address] 2730 Gateway Oaks Dr., #100
Sacramento, CA 95833

APPENDIX A

Appendix A: List of Stores

Store	Street	City	State	ZIP
27	5025 South Kipling St.	Littleton	CO	80127
41	13111 West Alameda Pkwy.	Lakewood	CO	80228
91	1227 15th Ave.	Longview	WA	98632
111	105 Neal St.	Grass Valley	CA	95945
190	424 Howe Ave.	Sacramento	CA	95825
204	2855 E Manoa Rd.	Honolulu	HI	96822
211	848 Ala Lilikoi St.	Honolulu	HI	96818
215	377 Keahole St.	Honolulu	HI	96825
219	3900 South Othello St.	Seattle	WA	98118
220	170 E Kamehameha Ave.	Kahului Maui	HI	96732
236	10926 West Bell Rd.	Sun City	AZ	85373
239	1601 North Park Dr.	Winslow	AZ	86047
242	3904 East 120th Ave.	Thornton	CO	80233
245	1044 Willow Creek Rd.	Prescott	AZ	86301
247	1225 West Guadalupe Rd.	Mesa	AZ	85202
249	650 Elm St.	Page	AZ	86040
250	4752 East Sunrise Dr.	Tucson	AZ	85718
251	1208 Morgan St.	Davenport	WA	99122
253	3185 West Apache Trail	Apache Junction	AZ	85120
261	101 Naco Hwy.	Bisbee	AZ	85603
262	20 E Main St.	Quincy	CA	95971
272	650 North Bisbee Ave.	Willcox	AZ	85643
284	1499 Hwy. 101	Reedsport	OR	97467
290	115 SE Seventh St.	Grants Pass	OR	97526
300	253 Mt. Herman Rd.	Scotts Valley	CA	95066
305	1071 El Camino	Redwood City	CA	94063
307	215 East Rose St.	Walla Walla	WA	99362
313	1601 Hollenbeck Ave.	Sunnyvale	CA	94087
330	9517 Ralston Rd.	Arvada	CO	80002
333	1803 George Washington Way	Richland	WA	99354
344	9160 West Colfax Ave.	Lakewood	CO	80215
350	702 North 5th Ave.	Sandpoint	ID	83864
363	700 Hwy. 101	Florence	OR	97439
368	2100 Queen Anne Ave. N	Seattle	WA	98109
371	601 West North St.	Enterprise	OR	97828
378	2220 North Coast Hwy.	Newport	OR	97365
379	1640 Williams Hwy.	Grants Pass	OR	97527
386	1755 Ivy St.	Junction City	OR	97448
390	2425 Miner St.	Idaho Springs	CO	80452
400	3707 North Main St.	Vancouver	WA	98663
406	2836 Pacific Ave.	Forest Grove	OR	97116
412	1455 Edgewater St. NW	Salem	OR	97304
424	795 Columbia River Hwy.	St. Helens	OR	97051

Appendix A: List of Stores

429	3380 Lancaster Dr. NE	Salem	OR	97305
430	1455 NE Division St.	Gresham	OR	97030
444	990 Hwy. 395 South	Hermiston	OR	97838
459	20830 108th Ave. SE	Kent	WA	98031
461	709 North Federal Blvd.	Riverton	WY	82501
462	205 North 5th Ave.	Yakima	WA	98902
477	28810 Military Rd. S	Federal Way	WA	98003
486	3842 Bridgeport Way	Tacoma	WA	98466
488	3020 Northeast 45th St.	Seattle	WA	98105
494	152 Roosevelt Ave. E	Enumclaw	WA	98022
496	15000 N E 24th	Redmond	WA	98052
497	17202 15th Ave. NE	Shoreline	WA	98155
502	5702 Summitview Ave.	Yakima	WA	98908
503	11031 19th Ave. SE	Everett	WA	98208
508	401 A Ave.	Lake Oswego	OR	97034
514	642 NE Third St.	Bend	OR	97701
531	101 Auburn Way S	Auburn	WA	98002
533	19150 NE Woodinville Duvall Rd.	Woodinville	WA	98077
534	3532 172nd St.	Arlington	WA	98223
535	20711 Bothell Hwy.	Bothell	WA	98012
537	19651 Hwy. 2	Monroe	WA	98272
543	4700 Yelm Rd. SE	Lacey	WA	98503
544	21301 Hwy. 410	Bonney Lake	WA	98391
549	500 East Third St.	Alliance	NE	69301
555	630 228th Ave. NE	Sammamish	WA	98074
563	613 S. Sixth St.	Sunnyside	WA	98944
584	711 West First Ave.	Toppenish	WA	98948
633	710 Rte. 73 South	Marlton	NJ	08053
635	1295 Victory Way	Craig	CO	81625
638	4100 Redwood Rd.	Oakland	CA	94619
640	16 Rancho Del Mar	Aptos	CA	95003
654	2096 Mountain Blvd.	Oakland	CA	94611
668	2100 Ralston Ave.	Belmont	CA	94002
669	5130 Broadway	Oakland	CA	94611
683	730 West Main St.	Farmington	NM	87401
687	6310 College Ave.	Oakland	CA	94618
691	1444 Shattuck Pl.	Berkeley	CA	94709
706	104 Midvalley	Carmel	CA	93923
722	457 West Main St.	Trinidad	CO	81082
737	160 First St.	Los Altos	CA	94022
739	3350 Mission St.	San Francisco	CA	94110
759	625 Monterey Blvd.	San Francisco	CA	94127
761	1212 Forest Ave.	Pacific Grove	CA	93950
763	2605 The Alameda Ave.	Santa Clara	CA	95050

Appendix A: List of Stores

767	6132 Bollinger Rd.	San Jose	CA	95129
777	30 Chestnut Ave.	S San Francisco	CA	94080
782	37601 Hwy. 26	Sandy	OR	97055
783	3540 Mt. Diablo Blvd.	Lafayette	CA	94549
785	850 La Playa St.	San Francisco	CA	94121
786	6255 Graham Hill Rd.	Felton	CA	95018
790	555 Bancroft Ave.	San Leandro	CA	94577
792	17023 SE 272nd St.	Kent	WA	98042
793	600 F St.	Arcata	CA	95521
797	231 W Jackson St.	Hayward	CA	94544
799	117 Morrissey Blvd.	Santa Cruz	CA	95062
835	5060 North Academy Blvd.	Colorado Springs	CO	80918
836	1008 N. Summit Blvd.	Frisco	CO	80443
853	7625 Old Georgetown Rd.	Bethesda	MD	20814
908	3550 Fruitvale Ave.	Oakland	CA	94602
910	1554 First St.	Livermore	CA	94550
913	1620 Clay St.	Napa	CA	94559
917	600 S Broadway	Walnut Creek	CA	94596
918	6340 Commerce Blvd.	Rohnert Park	CA	94928
919	12876 Saratoga Sunnyvale Rd.	Saratoga	CA	95070
928	600 Patterson Blvd.	Pleasant Hill	CA	94523
929	2558 Berryessa Rd.	San Jose	CA	95132
932	950 Las Gallinas Ave.	San Rafael	CA	94903
933	406 N Main St.	Sebastopol	CA	95472
936	710 Bancroft Rd.	Walnut Creek	CA	94598
939	3334 Alhambra Ave.	Martinez	CA	94553
951	867 Island Dr.	Alameda	CA	94502
952	139 N Washington St.	Easton	MD	21601
956	1799 Marlow Rd.	Santa Rosa	CA	95401
964	4950 Mission St.	San Francisco	CA	94112
967	2 Camino Sobrante	Orinda	CA	94563
968	709 Lincoln Rd. W	Vallejo	CA	94590
969	1355 Moraga Way	Moraga	CA	94556
970	1655 El Camino Real	San Mateo	CA	94402
975	701 S Fortuna Blvd.	Fortuna	CA	95521
976	605 Parker Bldg. A	Rodeo	CA	94572
978	660 S Main St.	Ft Bragg	CA	95437
983	1071 11th St.	Lakeport	CA	95453
984	14922 Olympic Dr.	Clearlake	CA	95422
988	3002 Story Rd.	San Jose	CA	95127
993	3902 Washington Blvd.	Fremont	CA	94538
994	1499 Washington Ave.	San Leandro	CA	94577
999	921 E Hillsdale Blvd.	Foster City	CA	94404
1004	2850 Audubon Village Dr.	Audubon	PA	19403

Appendix A: List of Stores

1011	14610 Memorial Dr.	Houston	TX	77079
1012	5219 Fm 1960 West	Houston	TX	77069
1013	1407 South Voss Rd.	Houston	TX	77057
1022	11711 West Bellfort St.	Stafford	TX	77477
1031	2931 Central City Blvd.	Galveston	TX	77551
1041	4800 West Bellfort St.	Houston	TX	77035
1055	7720 East Hwy. 69	Prescott Valley	AZ	86314
1057	4540 Kingwood Dr.	Kingwood	TX	77345
1066	12850 Memorial Dr.	Houston	TX	77024
1073	6194 SW Murray Blvd.	Beaverton	OR	97008
1078	2930 Ocean Beach Hwy.	Longview	WA	98632
1082	3355 Bethel Rd. SE	Port Orchard	WA	98366
1089	12251 Darnestown Rd.	Gaithersburg	MD	20878
1090	2685 Mill Bay Rd.	Kodiak	AK	99615
1094	1891 Pioneer Pkwy.	Springfield	OR	97477
1103	6701 East Mill Plain Blvd.	Vancouver	WA	98661
1107	12680 West 64th Ave.	Arvada	CO	80004
1108	1750 Miramonte Ave.	Mountan View	CA	94040
1109	2090 Harbison Dr.	Vacaville	CA	95687
1110	1546 North Main St.	Salinas	CA	93906
1115	7150 Leetsdale Dr.	Denver	CO	80224
1116	1050 Ken Pratt Blvd.	Longmont	CO	80501
1119	3747 Grand Ave.	Oakland	CA	94610
1123	2249 Cascade Ave.	Hood River	OR	97031
1125	1366 East Ave.	Chico	CA	95973
1126	11275 East Via Linda	Scottsdale	AZ	85259
1127	2401 Waterman Dr.	Fairfield	CA	94534
1135	804 West First St.	Cle Elum	WA	98922
1142	12519 NE 85th St.	Kirkland	WA	98033
1143	8340 15th Ave. NW	Seattle	WA	98117
1145	1955 South Sheridan Blvd.	Denver	CO	80227
1146	6775 West 120th Ave.	Broomfield	CO	80020
1159	121 W. Walnut St.	Newport	WA	99156
1160	1600 Plaza Way	Walla Walla	WA	99362
1186	27035 Pacific Hwy. S	Des Moines	WA	98198
1194	607 Omache Dr.	Omak	WA	98841
1195	5431 Clayton Rd.	Clayton	CA	94517
1196	639 S. Bernardo Ave.	Sunnyvale	CA	94087
1197	1790 Decoto Rd.	Union City	CA	94587
1201	4005 East Chandler Blvd.	Phoenix	AZ	85048
1203	2525 SE Tualatin Valley Hwy.	Hillsboro	OR	97123
1207	2300 West Hwy. 89A	Sedona	AZ	86336
1210	5150 Mae Anne Ave.	Reno	NV	89523
1211	3496 Camino Tassajara	Danville	CA	94506

Appendix A: List of Stores

1213	1902 Viers Mill Rd.	Rockville	MD	20851
1218	2970 Main St.	Susanville	CA	96130
1223	11919 North Jantzen Ave.	Portland	OR	97217
1224	5877 Jarvis Ave.	Newark	CA	94560
1225	1500 East Cedar Ave.	Flagstaff	AZ	86004
1229	465 West Mariposa Rd.	Nogales	AZ	85621
1230	2177 N.W. 185th Ave.	Hillsboro	OR	97124
1232	530 Canal St.	King City	CA	93930
1234	1125 Second St.	Brentwood	CA	94513
1242	E 2509 29th Ave.	Spokane	WA	99223
1245	15549 Union Ave.	Los Gatos	CA	95032
1246	6201 6th Ave.	Tacoma	WA	98406
1247	11041 Westheimer Rd.	Houston	TX	77042
1248	2660 North Federal Blvd.	Denver	CO	80211
1249	7500 South Pierce Way	Littleton	CO	80128
1252	253 High School Rd. NE	Bainbridge Island	WA	98110
1253	23565 North Scottsdale Rd.	Scottsdale	AZ	85255
1255	7110 North Oracle Rd.	Tucson	AZ	85704
1257	4495 First St.	Livermore	CA	94551
1258	1235 Stratford Ave.	Dixon	CA	95620
1259	3365 Deer Valley Rd.	Antioch	CA	94531
1260	401 South Roosevelt Dr.	Seaside	OR	97138
1263	590 Farrington Hwy. #400	Kapolei	HI	96707
1265	2785 Yulupa Ave.	Santa Rosa	CA	95405
1266	11290 Donner Pass Rd.	Truckee	CA	96161
1267	6460 East Yale Ave.	Denver	CO	80222
1269	1541 N.E. 181st Ave.	Gresham	OR	97230
1270	2042 Daniel Stewart Sq.	Woodbridge	VA	22191
1273	N 1441 Argonne Rd.	Spokane	WA	99212
1274	4567 E. U.S. Hwy. 60	Miami	AZ	85539
1275	599 West 4th St.	Benson	AZ	85602
1276	6500 Piney Branch Rd., NW	Washington	DC	20012
1283	8646 Richmond Hwy.	Alexandria	VA	22309
1285	6130 Rose Hill Dr.	Alexandria	VA	22310
1286	3275 West Colorado Ave.	Colorado Springs	CO	80904
1287	800 N.E. Third Ave.	Camas	WA	98607
1291	13733 Fountain Hills Blvd.	Fountain Hills	AZ	85268
1293	2341 So Winchester Blvd.	Campbell	CA	95008
1294	210 Washington Ave. S	Kent	WA	98032
1297	23632 Hwy. 99	Edmonds	WA	98026
1299	10100 N. Newport Hwy.	Spokane	WA	99218
1300	1330 Chain Bridge Rd.	McLean	VA	22101
1304	7397 Lee Hwy.	Falls Church	VA	22042
1344	3129 Marshall Hall Rd.	Bryans Rd.	MD	20616

Appendix A: List of Stores

1358	5101 Wilson Blvd.	Arlington	VA	22205
1395	4203 Davenport St. NW	Washington	DC	20016
1415	7605 Crain Hwy.	Upper Marlboro	MD	20772
1428	299 S Van Dorn St.	Alexandria	VA	22304
1431	12200 West Ox Rd.	Fairfax	VA	22033
1434	9080 Brooks Rd.	Windsor	CA	95492
1436	1624 72nd St. E	Tacoma	WA	98404
1437	1302 S. 38th	Tacoma	WA	98418
1438	415 North Main St.	Aztec	NM	87410
1439	785 El Camino Real	Sunnyvale	CA	94087
1440	624 Hwy. 105	Monument	CO	80132
1443	8785 Branch Ave.	Clinton	MD	20735
1445	2845 Alabama Ave. SE	Washington	DC	20020
1446	11051 South Parker Rd.	Parker	CO	80134
1447	6901 N.E. Sandy Blvd.	Portland	OR	97213
1448	680F West Washington St.	Sequim	WA	98382
1449	501 N Miller St.	Wenatchee	WA	98801
1451	221 NE 122nd Ave.	Portland	OR	97230
1455	840 E Dunne Ave.	Morgan Hill	CA	95037
1458	1500 East Main St.	Cottage Grove	OR	97424
1460	1781 Forest Dr.	Annapolis	MD	21401
1462	5821 Crossroads Ctr.	Falls Church	VA	22041
1463	2150 South Downing St.	Denver	CO	80210
1465	5146 Stevens Cr.	San Jose	CA	95129
1468	4300 NE 4th St.	Renton	WA	98059
1472	315 East College Way	Mt Vernon	WA	98273
1473	14020 E. Sprague Ave.	Spokane	WA	99216
1486	611 North Montana St.	Helena	MT	59601
1492	110 East 3rd St.	Port Angeles	WA	98362
1495	1129 Harrison Ave.	Centralia	WA	98531
1496	1405 East Main Ave.	Puyallup	WA	98372
1506	19715 Hwy. 99	Lynnwood	WA	98036
1508	3820 Rainier Ave. S	Seattle	WA	98118
1519	13719 Se Mill Plain Blvd.	Vancouver	WA	98684
1526	3071 Stevens Creek	Santa Clara	CA	95050
1540	3757 Forest Ln.	Dallas	TX	75244
1541	1978 Contra Costa Blvd.	Pleasant Hill	CA	94523
1554	730 Mountain View Rd.	Rapid City	SD	57702
1556	230 East Johnson Ave.	Coos Bay	OR	97420
1574	4950 Almaden Expy., Ste. 30	San Jose	CA	95118
1580	301 Westfield St.	Silverton	OR	97381
1623	4001 Inglewood Ave.	Redondo Beach	CA	90278
1631	122 Robles Dr.	Vallejo	CA	94591
1640	1503 City Center Rd.	McKinleyville	CA	95536

Appendix A: List of Stores

1648	2449 West Kettleman Ln.	Lodi	CA	95242
1661	2001 McHenry Ave., Suite C	Modesto	CA	95350
1669	26518 Bouquet Canyon Rd.	Saugus	CA	91350
1670	28751 Los Alisos Blvd.	Mission Viejo	CA	92692
1671	20440 Devonshire St.	Chatsworth	CA	91311
1672	820 Arneill Rd.	Camarillo	CA	93010
1673	8201 Topanga Canyon Blvd.	Canoga Park	CA	91304
1674	4033 Laurel Canyon Blvd.	Studio City	CA	91604
1676	30252 Crown Valley Pkwy.	Laguna Niguel	CA	92677
1682	2811 Middlefield Rd.	Palo Alto	CA	94306
1701	2941 Ygnacio Valley Rd.	Walnut Creek	CA	94598
1711	15 Marina Blvd.	San Francisco	CA	94123
1721	906 E. Olive St.	Lamar	CO	81052
1734	522 N. Orange St.	Redlands	CA	92374
1735	4241 Tierra Rejada Rd.	Moorpark	CA	93021
1736	2701 B. Harbor Blvd.	Costa Mesa	CA	92626
1743	980 N. U.S. Hwy. 491	Gallup	NM	87301
1757	591 Tres Pinos Rd.	Hollister	CA	95023
1769	2808 Country Club Blvd.	Stockton	CA	95204
1772	3050 N. Fry Rd.	Katy	TX	77449
1773	2225 Louisiana St.	Houston	TX	77002
1774	5264 W. 34th St.	Houston	TX	77092
1776	600 Kingwood Dr.	Kingwood	TX	77339
1779	2301 Ranch Rd. 620 South	Lakeway	TX	78734
1780	1000 Keller Pkwy.	Keller	TX	76248
1781	106 N. Denton-Tap Rd.	Coppell	TX	75019
1783	2645 Arapaho Rd.	Garland	TX	75044
1784	1501 Pioneer Rd.	Mesquite	TX	75149
1785	1075 W Fm 3040	Lewisville	TX	75067
1786	4215 S. Carrier Pkwy.	Grand Prairie	TX	75052
1788	7801 Alma Dr.	Plano	TX	75025
1789	101 Trophy Lake Dr.	Trophy Club	TX	76262
1793	2100 Newbury Rd.	Newbury Park	CA	91320
1802	1340 Gambell St.	Anchorage	AK	99501
1805	1650 W. Northern Lights Blvd.	Anchorage	AK	99517
1806	600 E. Northern Lights Blvd.	Anchorage	AK	99503
1807	11409 Business Park Blvd.	Eagle River	AK	99577
1808	10576 Kenai Spur Hwy.	Kenai	AK	99611
1809	5600 Debarr Rd.	Anchorage	AK	99504
1811	595 East Parks Hwy.	Wasilla	AK	99654
1812	4000 West Dimond Blvd.	Anchorage	AK	99502
1813	1501 Huffman Rd.	Anchorage	AK	99515
1817	7731 East Northern Lights Blvd.	Anchorage	AK	99504
1820	3033 Vintage Blvd.	Juneau	AK	99801

Appendix A: List of Stores

1832	90 Sterling Hwy.	Homer	AK	99603
1833	1313 Meals Ave.	Valdez	AK	99686
1834	2029 Airport Beach Rd.	Unalaska	AK	99692
1835	4th & Bering St.	Nome	AK	99762
1850	9911 Brodie Ln.	Austin	TX	78748
1857	12312 Barker Cypress Rd.	Cypress	TX	77429
1858	10228 W Broadway	Pearland	TX	77584
1877	880 South Perry St.	Castle Rock	CO	80104
1896	1400 Cypress Creek Rd.	Cedar Park	TX	78613
1913	450 South Ventura Rd.	Oxnard	CA	93030
1914	6351 Haven Ave.	Rancho Cucamonga	CA	91737
1922	2709 E. Hwy. 101	Port Angeles	WA	98362
1925	8805 Lakeview Pkwy.	Rowlett	TX	75089
1962	29530 Rancho California Rd.	Temecula	CA	92591
1967	560 Castle Pines Pkwy.	Castle Rock	CO	80104
1968	3051 Countryside Dr.	Turlock	CA	95380
1969	5700 Stockdale Hwy.	Bakersfield	CA	93309
1972	980 Hwy. North 287	Mansfield	TX	76063
1973	7000 Snider Plaza	University Park	TX	75205
1977	6200 Pacific Ave. SE	Lacey	WA	98503
1979	13440 North 7th St.	Phoenix	AZ	85022
1985	9705 North Thornydale Rd.	Tucson	AZ	85742
1986	9050 East Valencia Rd.	Tucson	AZ	85747
1989	9460 East Golf Links Rd.	Tucson	AZ	85730
2001	5671 Kanan Rd.	Agoura_Hills	CA	91301
2002	1311 Wilshire Blvd.	Santa Monica	CA	90403
2006	505 Telegraph Canyon Rd.	Chula Vista	CA	91910
2007	431 E. Arrow Hwy.	Glendora	CA	91740
2008	2616 E. Palmdale Blvd.	Palmdale	CA	93550
2012	7788 Regents Rd.	San Diego	CA	92122
2017	3125 Stockton Hill Rd.	Kingman	AZ	86401
2027	15740 Laforge St.	Whittier	CA	90603
2028	1201 South Plaza Way	Flagstaff	AZ	86001
2029	4033 West Ave. L	Lancaster	CA	93536
2030	25850 N. The Old Rd.	Valencia	CA	91381
2032	10773 North Scottsdale Rd.	Scottsdale	AZ	85254
2033	4500 Coffee Rd.	Bakersfield	CA	93308
2034	13730 Foothill Blvd.	Sylmar	CA	91342
2035	5360 Olive Dr.	Bakersfield	CA	93308
2039	19333 Victory Blvd.	Reseda	CA	91335
2044	260 West Continental Rd.	Green Valley	AZ	85614
2046	3400 Stine Rd.	Bakersfield	CA	93309
2047	5805 E. Los Angeles Ave.	Simi Valley	CA	93063
2048	163 S. Turnpike Rd.	Goleta	CA	93117

Appendix A: List of Stores

2049	330 W. El Norte Pkwy.	Escondido	CA	92026
2051	2951 Marina Bay Dr.	League City	TX	77573
2053	3645 Midway Dr.	San Diego	CA	92110
2054	13503 Camino Del Sol	Sun City West	AZ	85375
2056	932 E. Badillo St.	Covina	CA	91724
2062	240 S. Diamond Bar Blvd.	Diamond Bar	CA	91765
2064	2800 Fletcher Pkwy.	El Cajon	CA	92020
2065	6951 El Camino Real	Carlsbad	CA	92009
2066	18439 Ventura Blvd.	Tarzana	CA	91356
2077	3118 S. Sepulveda Blvd.	Los Angeles	CA	90034
2078	9119 Reseda Blvd.	Northridge	CA	91324
2079	11986 Bernardo Plaza Dr.	San Diego	CA	92128
2080	5548 East Grant Rd.	Tucson	AZ	85712
2081	13255 Black Mountain Rd.	San Diego	CA	92129
2083	2190 East Fry Blvd.	Sierra Vista	AZ	85635
2088	4857 East Greenway Rd.	Phoenix	AZ	85254
2089	600 N. Pacific Coast Hwy.	Laguna Beach	CA	92651
2090	5922 Edinger Ave.	Huntington Beach	CA	92649
2092	2048 Avenida De Los Arboles	Thousand Oaks	CA	91362
2093	8011 University Ave.	La Mesa	CA	91942
2094	5275 Mission Oak Blvd.	Camarillo	CA	93012
2096	115 W. Main St.	Ventura	CA	93001
2100	9860 National Blvd.	Cheviot Hills	CA	90034
2101	1040 Coast Village Rd.	Montecito	CA	93108
2105	4365 Glencoe Ave.	Marina Del Rey	CA	90292
2107	10675 Scrpps Poway Pkwy.	San Diego	CA	92131
2108	1212 Beryl St.	Redondo Beach	CA	90277
2109	3855 State St.	Santa Barabra	CA	93105
2110	715 Pier Ave.	Hermosa Beach	CA	90254
2111	24160 Lyons Ave.	Newhall	CA	91321
2116	1702 Garnet St.	San Diego	CA	92109
2118	3550 Murphy Canyon Rd.	San Diego	CA	92123
2119	3850 Valley Centre Dr.	San Diego	CA	92130
2120	4725 Clairemont Dr.	San Diego	CA	92117
2121	940 S. Santa Fe Ave.	Vista	CA	92084
2123	777 Glendora Ave.	West Covina	CA	91790
2124	7789 Foothill Blvd.	Tujunga	CA	91042
2125	1160 Via Verde Ave.	San Dimas	CA	91773
2130	4404 Bonita Rd.	Bonita	CA	91902
2131	12199 Hesperia Rd.	Victorville	CA	92395
2134	10460 Clairemont Mesa Blvd.	San Diego	CA	92124
2136	8310 Mira Mesa Blvd.	San Diego	CA	92126
2137	5630 Lake Murray Blvd.	La Mesa	CA	91942
2138	1730 South Buckley Rd.	Aurora	CO	80017

Appendix A: List of Stores

2139	1390 N. Allen Ave.	Pasadena	CA	91104
2142	2560 El Camino Real	Carlsbad	CA	92008
2143	635 W Foothill Blvd.	La Canada	CA	91011
2152	155 California Blvd.	Pasadena	CA	91105
2155	550 E. Baseline Rd.	Claremont	CA	91711
2156	2345 E. Valley Pkwy.	Escondido	CA	92027
2158	3840 La Sierra Ave.	Riverside	CA	92505
2163	660 E. Los Angeles Ave.	Simi Valley	CA	93065
2164	5688 Telephone Rd.	Ventura	CA	93003
2167	350 North Lemon Ave.	Walnut	CA	91789
2169	435 Foothill Blvd.	Glendora	CA	91741
2174	671 S. Rancho Santa Fe Rd.	San Marcos	CA	92078
2175	78-271 State Hwy. 111	La Quinta	CA	92253
2176	12961 W. Chapman Ave.	Garden Grove	CA	92840
2177	14200 Palm Dr.	Desert Hot Springs	CA	92240
2181	7733 North 1st St.	Fresno	CA	93720
2188	8949 N. Cedar Ave.	Fresno	CA	93720
2189	4343 N. Blackstone Ave.	Fresno	CA	93726
2200	130 W. Foothill Blvd.	Monrovia	CA	91016
2203	5949 E. Spring St.	Long Beach	CA	90808
2206	16450 Beach Blvd.	Westminster	CA	92683
2208	25 Kaneohe Bay Dr.	Kailua	HI	96734
2209	5500 Woodruff Ave.	Lakewood	CA	90713
2210	26022 Marguerite Pkwy.	Mission Viejo	CA	92692
2212	11030 Jefferson Blvd.	Culver City	CA	90230
2213	11750 Wilshire Blvd.	Los Angeles	CA	90025
2214	1110 W. Alameda Ave.	Burbank	CA	91506
2215	1135 Lindero Canyon Rd.	Thousand Oaks	CA	91362
2216	8010 E. Santa Ana Canyon Rd.	Anaheim Hills	CA	92808
2217	22451 Antonio Pkwy.	Rancho S. Margarita	CA	92688
2224	845 E. California Blvd.	Pasadena	CA	91106
2225	6534 Platt Ave.	West Hills	CA	91307
2226	14845 Ventura Blvd.	Sherman Oaks	CA	91403
2228	1213 Fair Oaks Ave.	South Pasadena	CA	91030
2229	727 N. Vine St.	Los Angeles	CA	90038
2235	1000 Bayside Dr.	Newport Beach	CA	92660
2250	16830 San Fernando Mission Blvd.	Granada Hills	CA	91344
2262	710 Broadway	Santa Monica	CA	90401
2264	655 N. Fair Oaks Ave.	Pasadena	CA	91103
2266	17380 Sunset Blvd.	Pacific Palisades	CA	90272
2267	11674 Santa Monica Blvd.	Los Angeles	CA	90025
2270	4030 Centinela Ave.	Culver City	CA	90066
2272	123 Metropole Ave.	Catalina	CA	90704
2273	245 Palos Verdes Blvd.	Redondo Beach	CA	90277

Appendix A: List of Stores

2275	410 Manhattan Beach Blvd.	Manhattan Beach	CA	90266
2283	1221 Gaffey St.	San Pedro	CA	90731
2285	11322 Los Alamitos Blvd.	Los Alamitos	CA	90720
2286	4805 Granite Dr.	Rocklin	CA	95677
2288	2039 Verdugo Blvd.	Montrose	CA	91020
2295	600 Edith St.	Corning	CA	96021
2300	1482 S. Broadway	Santa Maria	CA	93454
2301	817 E. Main St.	Santa Maria	CA	93454
2306	3900 Broad St.	San Luis Obisbo	CA	93401
2312	1130 Los Osos Valley Rd.	Los Osos	CA	93402
2317	1191 E. Creston Rd.	Paso Robles	CA	93446
2323	7544 Girard Ave.	La Jolla	CA	92037
2324	17662 17th St.	Tustin	CA	92780
2326	780 N. Brea Blvd.	Brea	CA	92821
2327	931 Lomas Santa Fe Dr.	Solana Beach	CA	92075
2328	130 W. Lincoln Ave.	Anaheim	CA	92805
2332	24270 El Toro Rd.	Laguna Hills	CA	92637
2333	13439 Camino Canada	El Cajon	CA	92021
2335	2684 N. Tustin St.	Orange	CA	92865
2336	360 East H St.	Chula Vista	CA	91910
2338	665 Saturn Blvd.	San Diego	CA	92154
2341	620 West Platte Ave.	Fort Morgan	CO	80701
2343	985 Tamarack Ave.	Carlsbad	CA	92008
2345	1000 W. El Norte Pkwy.	Escondido	CA	92026
2348	2606 Del Mar Heights Rd.	San Diego	CA	92014
2349	13438 Poway Rd.	Poway	CA	92064
2352	6155 El Cajon Blvd.	San Diego	CA	92115
2353	933 Sweetwater Rd.	Spring Valley	CA	91977
2355	4145 30th St.	San Diego	CA	92104
2358	3610 Adams Ave.	San Diego	CA	92116
2359	6555 Mission Gorge Rd.	San Diego	CA	92120
2364	868 Orange St.	Coronado	CA	92118
2365	3681 Avocado Ave.	La Mesa	CA	91941
2366	12419 Woodside Ave.	Lakeside	CA	92040
2367	950 N. Second St.	El Cajon	CA	92021
2370	3993 Governor Dr.	San Diego	CA	92122
2373	31564 Grape St.	Lake Elsinore	CA	92532
2376	1270 E. Main St.	Barstow	CA	92311
2381	535 N. McKinley St.	Corona	CA	92879
2383	72675 Hwy. 111	Palm Desert	CA	92260
2384	4733 E. Palm Canyon Dr.	Palm Springs	CA	92264
2386	27220 Sun City Blvd.	Sun City	CA	92586
2389	3125 W. Florida St.	Hemet	CA	92545
2390	475 E. Windmill Ln.	Las Vegas	NV	89123

Appendix A: List of Stores

2391	1031 Nevada Hwy.	Boulder City	NV	89005
2392	7530 W. Lake Mead Blvd.	Las Vegas	NV	89128
2395	1940 Village Center Cir.	Las Vegas	NV	89134
2396	1131 E. Tropicana Ave.	Las Vegas	NV	89119
2400	481 Old Mammoth Rd.	Mammoth Lakes	CA	93546
2406	750 N. Imperial Ave.	El Centro	CA	92243
2409	40044 Hwy. 49	Oakhurst	CA	93644
2413	5610 Lake Isabella Blvd.	Lake Isabella	CA	93240
2415	2401 N. Chester Ave.	Oildale	CA	93308
2420	9000 Ming Ave.	Bakersfield	CA	93311
2425	850 Linden Ave.	Carpinteria	CA	93013
2430	1125 Maricopa Hwy.	Ojai	CA	93023
2434	576 W. Main St.	Santa Paula	CA	93060
2436	2101 N. Rose Ave.	Oxnard	CA	93036
2442	636 Ventura St.	Fillmore	CA	93015
2471	2727 Exposition Blvd.	Austin	TX	78703
2475	5311 Balcones Dr.	Austin	TX	78731
2477	3300 Bee Caves Rd., Suite 500	Austin	TX	78746
2480	6600 Mopac Expy. South	Austin	TX	78749
2481	1500 W. 35th St.	Austin	TX	78703
2482	8040 Mesa Dr.	Austin	TX	78731
2483	715 S. Exposition Blvd.	Austin	TX	78703
2485	2025 W. Ben White Blvd.	Austin	TX	78704
2490	10900-D Research Blvd.	Austin	TX	78759
2501	1855 E. Cochran St.	Simi Valley	CA	93065
2502	500 E. Manchester Blvd.	Inglewood	CA	90301
2503	4001 Villanova Dr.	Dallas	TX	75225
2508	27320 Alicia Pkwy.	Laguna Niguel	CA	92656
2511	2667 E. Windmill Pkwy.	Henderson	NV	89074
2520	111 18th St.	Burlington	CO	80807
2524	2101 W. Imperial Hwy.	La Habra	CA	90631
2526	819 W. Arapaho Rd, Suite 39	Richardson	TX	75080
2534	6333 East Mockingbird Ln.	Dallas	TX	75214
2544	10455 North Central Expy.	Dallas	TX	75231
2554	3100 Independence Pkwy.	Plano	TX	75075
2557	206 North Grand Ave.	Gainesville	TX	76240
2559	3535 Beltline Rd.	Irving	TX	75062
2560	1758 Grand Ave.	Grover Beach	CA	93433
2561	925 Northwest Hwy.	Garland	TX	75041
2566	6770 Abrams Rd.	Dallas	TX	75231
2568	4836 West Park Blvd.	Plano	TX	75093
2570	5968 West Parker Rd.	Plano	TX	75093
2574	3100 S. Hulen St.	Fort Worth	TX	76109
2578	2535 Firewheel Pkwy.	Garland	TX	75040

Appendix A: List of Stores

2580	100 W. Southlake Blvd. Suite 2	Southlake	TX	76092
2581	4848 Preston Rd.	Frisco	TX	75035
2587	5425 S. Cooper St.	Arlington	TX	76017
2588	820 South Macarthur Blvd.	Coppell	TX	75019
2590	4112 North Josey Ln.	Carrollton	TX	75007
2595	3945 Legacy Dr.	Plano	TX	75023
2597	4200 Chino Hills Pkwy Ste. 400	Chino Hills	CA	91709
2609	612 Grapevine Hwy.	Hurst	TX	76054
2617	9420 College Park Dr. #100	The Woodlands	TX	77384
2642	5809 East Lovers Ln.	Dallas	TX	75206
2643	14280 Marsh Ln.	Addison	TX	75001
2659	3520 Riverside Plaza	Riverside	CA	92506
2665	4520 Sunset Blvd.	Los Angeles	CA	90028
2670	1890 Fm 359	Richmond	TX	77469
2671	525 South Fry Rd.	Katy	TX	77450
2672	18322 Clay Rd.	Houston	TX	77084
2673	2250 Buckthorne Pl.	Spring	TX	77380
2674	604 Hwy. 332	Lake Jackson	TX	77566
2686	1701 Randol Mill Rd.	Arlington	TX	76012
2696	14840 SE Webster Rd.	Milwaukie	OR	97267
2722	8355 N Rampart Range Rd.	Littleton	CO	80125
2810	1200 Second Ave.	MonteVista	CO	81144
2817	232 G St.	Salida	CO	81201
2824	1900 Hwy. 24	Leadville	CO	80461
2839	840 Village Center Dr.	Colorado Springs	CO	80919
2840	2010 Freedom Blvd.	Watsonville	CA	95019
2841	815 Canyon Del Rey Blvd.	Del Rey Oaks	CA	93940
2842	867 Sutton Way	Grass Valley	CA	95945
2911	2798 Arapahoe Ave.	Boulder	CO	80302
2917	1605 Bridge St.	Brighton	CO	80601
2918	3526 West Tenth St.	Greeley	CO	80634
2954	6519 Main St.	Bonners Ferry	ID	83805
3010	4015 E. Castro Valley Blvd.	Castro Valley	CA	94552
3017	3027 Rancho Vista Blvd.	Palmdale	CA	93551
3027	170 El Camino Real	S San Francisco	CA	94080
3031	85 Westlake Mall	Daly City	CA	94015
3040	2522 Foulk Rd.	Wilmington	DE	19810
3044	1201 Avacado Blvd.	El Cajon	CA	92020
3048	2075 Westheimer Rd.	Houston	TX	77098
3054	4775 W. Panther Creek	The Woodlands	TX	77381
3058	57590 29 Palms Hwy.	Yucca Valley	CA	92284
3063	870 Third Ave.	Chula Vista	CA	91911
3064	5130 Bellaire Blvd.	Bellaire	TX	77401
3067	5161 San Felipe St.	Houston	TX	77056

Appendix A: List of Stores

3068	5800 New Territory Blvd.	Sugar Land	TX	77479
3069	20445 Yorba Linda Blvd.	Yorba Linda	CA	92886
3070	1525 South Mason Rd.	Katy	TX	77450
3075	1129 Fair Oaks Ave.	South Pasadena	CA	91030
3083	301 N. Pass Ave.	Burbank	CA	91505
3086	2122 S. Hacienda Blvd.	Hacienda Heights	CA	91745
3091	4732 Brooklyn Ave.N.E.	Seattle	WA	98105
3111	555 Floresta Blvd.	San Leandro	CA	94578
3121	2237 West Cleveland Ave.	Madera	CA	93637
3122	2550 Bell Rd.	Auburn	CA	95603
3124	1187 South Main St.	Manteca	CA	95337
3125	3889 San Pablo Ave.	Emeryville	CA	94608
3126	610 Hegenberger Rd.	Oakland	CA	94621
3127	1291 Sanguinetti Rd.	Sonora	CA	95370
3135	2725 Agoura Rd.	Thousand Oaks	CA	91361
3138	16550 W. Soledad Canyon Rd.	Santa Clarita	CA	91351
3154	6817 West Peoria Ave.	Peoria	AZ	85345
3160	8891 Atlanta Ave.	Huntington Beach	CA	92646
3161	10321 Sepulveda Blvd.	Mission Hills	CA	91345
3208	745 E. Naomi Ave.	Arcadia	CA	91007
3218	36-101 Bob Hope Dr.	Rancho Mirage	CA	92270
3247	101 Grand Coulee Hwy.	Grand Coulee	WA	99133
3248	West 902 Francis Ave.	Spokane	WA	99208
3252	601 South Pioneer Way Suite-A	Moses Lake	WA	98837
3255	East 933 Mission Ave.	Spokane	WA	99202
3256	1525 West Park Ave.	Anaconda	MT	59711
3258	804 Beverly Blvd.	Montebello	CA	90640
3263	1342 N. Alvarado St.	Los Angeles	CA	90026
3269	101 East Main St.	Hamilton	MT	59840
3279	2500 Massachusetts Ave.	Butte	MT	59701
3295	1001 North 4th St.	Coeur D'alene	ID	83814
3472	3903 Factoria Square Mall SE	Bellevue	WA	98006
3500	6850 NE Bothell Way	Kenmore	WA	98028
3502	9 Highland Park Village	Dallas	TX	75205
3517	24325 Crenshaw Blvd.	Torrance	CA	90503
3519	4550 Atlantic Ave.	Long Beach	CA	90807
3522	522 Preston Royal Ctr.	Dallas	TX	75230
3545	900 E Meridian Ave. Suite 12	Milton	WA	98354
3555	3300 Harwood Rd.	Bedford	TX	76021
3560	8698 Skillman St.	Dallas	TX	75243
3563	633 West Wheatland Rd.	Duncanville	TX	75116
3572	2600 Flower Mound Rd.	Flower Mound	TX	75028
3573	3001 Hardin Blvd.	McKinney	TX	75070
3575	2301 Justin Rd.	Flower Mound	TX	75028

Appendix A: List of Stores

3576	4000 William D. Tate Ave.	Grapevine	TX	76051
3579	900 W. McDermott Dr.	Allen	TX	75013
3582	18212 Preston Rd.	Dallas	TX	75252
3597	11920 Preston Rd.	Dallas	TX	75230
3608	7700 Northwest Hwy.	Dallas	TX	75225
3614	315 South Hampton Rd.	Dallas	TX	75208
3617	2611 West Park Row Dr.	Arlington	TX	76013
3621	4010 North Macarthur Blvd.	Irving	TX	75038
3622	6377 Camp Bowie Blvd.	Fort Worth	TX	76116
3623	210 East Pleasant Run Rd.	Desoto	TX	75115
3625	302 South Park Blvd.	Grapevine	TX	76051
3637	1380 W. Campbell Rd.	Dallas	TX	75080
3641	3411 Custer Pkwy.	Richardson	TX	75080
3645	2200 East 14th St.	Plano	TX	75074
3650	14999 Preston Rd.	Dallas	TX	75254
3652	745 Cross Timbers Rd.	Flower Mound	TX	75028
3658	2755 N. Collins St.	Arlington	TX	76006
3714	617 West 29th St.	Pueblo	CO	81008
3715	1322 East 8th St.	Pueblo	CO	81001
3723	315 West 2nd St.	Lajunta	CO	81050
3727	222 West Seventh St.	Walsenburg	CO	81089
3729	1231 South Prairie Ave.	Pueblo	CO	81005
4018	10016 Scripps Ranch Blvd.	San Diego	CA	92131
4021	6571 West 80th St.	Los Angeles	CA	90045
4030	2400 Peoples Plaza	Newark	DE	19702
4033	5586 Weslayan St.	Houston	TX	77005
4062	2323 Clear Lake City Blvd.	Houston	TX	77062
4160	400 Dartmouth Ave.	Lovelock	NV	89419
4205	415 14th St. SE	Washington	DC	20003
4262	155 East First St.	Coquille	OR	97423
4292	585 Siskiyou Blvd.	Ashland	OR	97520
4313	904 West Main St.	Battle Ground	WA	98604
4316	244 North F St.	Lakeview	OR	97630
4318	Columbia River Hwy.	Clatskanie	OR	97016
4333	450 S.W.Third Ave.	Corvallis	OR	97333
4342	101 S.E. 82nd Ave.	Portland	OR	97215
4381	1205 Campbell St.	Baker City	OR	97814
4387	95 82nd Dr.	Gladstone	OR	97027
4395	211 North Eighth St.	Klamath Falls	OR	97601
4405	408 N.E. 81st St.	Hazel Dell	WA	98665
4469	246 West Monroe St.	Burns	OR	97720
4510	6745 S.W. Hillsdale Hwy.	Portland	OR	97225
4513	350 East 40th Ave.	Eugene	OR	97405
4520	11696 N.E. 76th St.	Vancouver	WA	98662

APPENDIX B

REFRIGERANT COMPLIANCE PLAN

(RCP)

Safeway Inc.
July 18, 2013

Table of Contents

For Questions on this RCP please contact either Wade Krieger, Manager Refrigeration and HVAC at 623-869-4027 or Rob Uhl Engineering Manager at 925-226-5720.

Refrigerant Mission Statement

A-10.1Objective

To detail how Safeway Inc. complies with Sections 608 and 609 of the Clean Air Act Amendments as codified in 40 CFR Part 82 rules and regulations.

A-10.2Mission Statement

Safeway Inc. management is committed to providing a safe, healthful, and environmentally sound workplace for its tenants, employees, and contractors while complying with all environmental regulatory requirements.

We will emphasize:

- ☑ Providing a business environment, which fosters professionalism, team effort and personal responsibility for service quality.
- ☑ Providing environmentally responsible solutions.
- ☑ Minimizing Safeway's "risk" exposure through proactive management policies and action programs designed to meet and/or exceed federal, state, and local requirements.
- ☑ Insuring all responsible employees and contractors are aware of and will comply with all applicable environmental regulations.
- ☑ Replacement or retrofit of Ozone Depleting Substance (ODS) equipment, such as CFC equipment, at the end of its service life or when economically feasible.

The Safeway Refrigerant Compliance Plan encompasses a strategic approach and general guidance for managing building air conditioning and refrigeration equipment and refrigerant service tools. In brief, the program is to properly recover/recycle refrigerants, repair leaks, document all activities and to safely handle, store and dispose of refrigerants.

Responsibilities

A-10.1 Objective

To describe the responsibilities of Safeway's personnel who are responsible for refrigerant compliance management.

A-10.2Background

Safeway Inc. has acknowledged the federal and local regulations for refrigerants. Safeway has provided guidelines, requirements, best practices, and training on specific processes to manage refrigerants. Safeway has established a chain of command for refrigerant compliance

A-10.3 Division Construction Director

The Division Construction Director has responsibility for overall operations and has the budget and authority to implement the Refrigerant Compliance Plan. The responsibility for refrigerant compliance is delegated to the Division Maintenance Manager with support from the Division Safety/Environmental Affairs Manager.

A-10.4 Division Safety/Environmental Affairs Manager

The Division Safety/Environmental Affairs Manager serves as a resource to provide assistance in meeting Safeway's obligations for refrigerant compliance management.

Responsibilities

☑ Supports the Division Maintenance Manager in implementing the Refrigerant Compliance Plan

☑ Works with the Division Refrigerant Supervisor to identify approved Waste Disposal contractors for each division and assist with arrangements for removal of waste materials, including used refrigeration oil, when needed

☑ Check status quarterly of any outstanding Action Plans with Division Construction Director. [Action Plans are written by Corporate Maintenance & Utilities, who will provide a list monthly to the Safety/Environmental Affairs Managers.] Escalate any concerns regarding lagging Action Plans with Corporate Environmental Affairs Director and Corporate Maintenance & Utilities Group Director.

☑ Check that MAINTENANCE DEPARTMENT ANNUAL REFRIGERANT COMPLIANCE INSPECTION forms are current (annual) with Division Maintenance Manager. Report delinquent forms to Division Maintenance Manager and Division Construction Director.

A-10.5 Division Maintenance Manager

The Division Maintenance Manager will fill the role of Division Refrigerant Supervisor unless the Division has an in-house refrigeration department and the responsibility can be assigned to the Service Department supervisor.

Responsibilities

☑ Supports the Division Refrigerant Supervisor in implementing the Refrigerant Compliance Plan.

☑ Mitigates risks associated with refrigerant issues when identified.

☑ Procure equipment and services required to comply with regulations and the Refrigerant Compliance Plan.

A-10.5.1 Division Maintenance Representatives

The Division Maintenance Rep will conduct field inspections for compliance verification as well as work with the Maintenance Manager on implementation of the Refrigerant Compliance Plan.

A-10.6 Division Refrigerant Supervisor (Typically The Division Maintenance Manager)

The Division Refrigerant Supervisor has the primary responsibility for implementation of this plan and shall communicate the refrigerant compliance issues to all affected Safeway employees, technicians and contractors.

Responsibilities

- ☑ Implements the Refrigerant Compliance Plan.
- ☑ Insures that MAINTENANCE DEPARTMENT ANNUAL REFRIGERANT COMPLIANCE INSPECTIONS are conducted and properly recorded for each location.
- ☑ Facilitates training on using the Refrigerant Compliance Plan for service technicians for both in-house and third party service providers.
- ☑ Maintains contact with refrigerant suppliers and service contractors to insure the Refrigerant Compliance Plan is being followed including but not limited to periodic verification of technician certification, field inspections of contractors equipment, inspection of contractors refrigerant tracking paperwork, and questioning service technician on their knowledge of EPA rules and guidelines.
- ☑ Insures that each service provider submits the Contractor's Compliance Certification annually.
- ☑ Insures that the transportation and disposal of used refrigerant, used oil and parts is done according to the specifications of the Refrigerant Compliance Plan.
- ☑ Provides input to budget planning process for refrigerant compliance.
- ☑ Identifies risks associated with refrigerant issues and communicates to management.
- ☑ Provide suggested revisions or updates for improving the refrigerant compliance plan to the Corporate Director of Maintenance & Utilities for consideration.
- ☑ Determine applicable state and local requirements and verify compliance with those requirements.
- ☑ Works with refrigeration service contractors to assure compliance with using the Refrigerant Management System (RMS).

A-10.7 RFSC (Safeway's Retail Facility Service Center) Refrigerant Manager

Phone Number (623) 869-3110 **Email** rfsc.refcompliance@safeway.com

- ☑ Maintain required documentation regarding the management and handling of refrigerants (i.e., training record, maintenance records, refrigerant use, etc.).

- ☑ Insures that the transportation and disposal of used refrigerant, used oil and parts is done according to the specifications of the Refrigerant Compliance Plan.
- ☑ Document, track and file what locations have had a MAINTENANCE DEPARTMENT ANNUAL REFRIGERANT COMPLIANCE INSPECTION
- ☑ Review the MAINTENANCE DEPARTMENT ANNUAL REFRIGERANT COMPLIANCE INSPECTIONS to make sure that all spaces marked NO have a complete and satisfactory explanation.
- ☑ Review all invoices with refrigerant usage (leaks) prior to invoice processing
- ☑ Confirm refrigerant leak documents include Refrigerant Management Software (RMS) event #s
- ☑ Facilitate RCP training for in-house and third party service providers
- ☑ Maintains contact with refrigerant suppliers and service contractors to insure the RCP is being followed.
- ☑ Insure that each service provider submits the Contractors Compliance Certificate annually.
- ☑ File and document Equipment Disposal Records as provided by contractors and Division Project Managers.
- ☑ Edit and maintain RMS
- ☑ Setup and train new contractors in RMS
- ☑ Order service refrigerant as needed

A-10.8 Contractor

- ☑ Maintaining correct level of certifications for working on our stores.
- ☑ Maintain, leak test, and document recovery unit maintenance per manufacturer's recommendations.
- ☑ Work with the Refrigerant Supervisor to facilitate any needed repairs or replacements.
- ☑ Enter required information into Safeway's Refrigerant Management System (RMS) within 10 days of leak event.

A-10.9 Refrigerant Technician

Each technician is responsible for becoming informed on and complying with the federal and local requirements and the Safeway Refrigerant Compliance Plan requirements.

Responsibilities

- ☑ Complete the Safeway Refrigerant Tracking Form 2 each time they do service.
- ☑ Maintaining correct level of certifications for working on our stores.

A-10.10 Corporate Director of Environmental Affairs

The Director of Environmental Affairs has the responsibility to make sure the company is compliant in all matters pertaining to the environment. Specifically the Director will provide clarification and interpretation on the different requirements of the Clean Air Act. The Director of Environmental Affairs office must first approve any changes of substance to the Refrigerant Compliance Plan.

A-10.11 Corporate Director of Maintenance and Energy Utilization

The Director of Maintenance and Energy Utilization has the responsibility to insure corporate directives related to store maintenance are followed and executed properly. Specifically the Director has been charged to implement and follow through on the Corporate Refrigerant Compliance Plan. All questions on how and when to follow the program must be cleared through the Directors office.

Responsibilities

- ☑ Supports the Division Maintenance Manager in implementing the Refrigerant Compliance Plan
- ☑ Periodically inspects the compliance with the Refrigerant Compliance Plan

A-10.12 Division Construction Project Manager

The Division Construction Project Manager will work with the Division Refrigerant Supervisor to insure that the Refrigerant Compliance Plan is followed during construction and demolition phases of their projects.

Responsibilities

- ☑ Make sure that all contractors working with refrigerant containing equipment are knowledgeable of the Refrigerant Compliance Plan and are following the guidelines provided.
- ☑ Make sure all contractors working with refrigerant containing equipment have signed a Contractor's Compliance Certification and supplied the required supporting documentation prior to commencing work. The CCC is a permanent part of the project construction file.
- ☑ Make sure all used refrigerants, refrigerant oils, and abandoned refrigerant containing equipment are correctly labeled and disposed of according the terms in the Refrigerant Compliance Plan. Use the Equipment Disposal Record for each piece of abandoned equipment. The Equipment Disposal Record is a permanent part of the project file. Send a copy of this EDR to RFSC.
- ☑ Must notify the Division Refrigerant Supervisor of any accidental discharges of refrigerant gasses.

- ☑ Make sure that all refrigerant leaks are correctly repaired and recorded on the Safeway Refrigerant Tracking Form 2 and be sure to enter the information into the RMS within 10 days of leak event.
- ☑ The yellow copy of the Safeway Refrigerant Tracking Form 2 must be stored in a specified weatherproof container in the compressor room.
- ☑ Maintain an inventory of refrigerant gasses when stored on site. Use one refrigerant Inventory form for each variety of refrigerants.
- ☑ For New Stores and Remodels ensure that the contractor submits Safeway's Form "Refrigeration / HVAC System Information Form".
- ☑ Ensures refrigerant cylinders get returned to the supplier by contacting RFSC (623) 869-3110 rfsc.refcompliance@Safeway.com, or disposable cylinders are disposed of properly.

MAINTENANCE DEPARTMENT ANNUAL REFRIGERANT COMPLIANCE INSPECTIONS

A-20.1 Objective

To provide a tool for the Division Refrigerant Supervisor to verify continued compliance with federal regulations and the Refrigerant Compliance Plan requirements. The form is designed to assess the effectiveness of a site's Refrigerant Compliance Plan.

Technician Requirements

A-30.1 Objective

To define the requirements for persons who perform refrigerant services.

A-30.2Who Must Be Certified

EPA approved certification testing is required for any person who may perform service, maintenance, repair or recovery work on a refrigerant containing circuit. Safeway technicians and Contractor technicians shall service only equipment for which they are certified.

A-30.3EPA Certification

The required type of certification testing depends on the type of refrigerant being used and the size of the system being serviced. The four types of certification identified by the Clean Air Act Amendments Section 608, stationary equipment are presented in the following table:

Type of equipment serviced	Level of required certification
Small appliances (<5lbs.)	Type I
High- and very-high-pressure equipment	Type II

Low pressure equipment All types	Type III Universal*

**Type IV Universal does not include motor vehicles.*

It is recommended that the Division Refrigerant Supervisor provide an annual refresher training session for in-house technicians to obtain technician input on subjects, utilize manufacturer's training and at a minimum cover safety issues, alternative refrigerants, servicing procedures, federal, state and local regulations.

A-30.4Service technicians must be prepared to do the following if an EPA inspector or the Division Refrigeration Supervisor is on site.

1. Present their certification cards.
2. Recite the required recovery vacuum levels for the refrigerants being used at the location where they are working.
3. Know the leak trigger rates for the four over 50 pound EPA equipment classifications.
4. Demonstrate the proper use of a recovery unit and validate that they perform leak tests on their recovery units, and can calibrate their gages.

A-30.5Technician Certification Card Review

The service technician must have received refrigerant handling certification from an EPA approved program. If the technician's card was issued from a program that is no longer approved, that technician's card is not valid and must be re-certified. In a Safeway store that classification is generally a universal classification.

Refrigerant Recovery Equipment Requirements

A-40.1 Objective

To define the requirements which users of recovery equipment used in a Safeway location will follow to ensure compliance with EPA regulations.

A-40.2Recovery Unit Registration for Safeway owned equipment

For in-house refrigeration The Division Refrigerant Supervisor shall assure that an EPA Recovery Unit Acquisition Certification Form (OMB #2060-0256) has been submitted to the appropriate EPA region. The Division Refrigerant Supervisor is responsible for entering each piece of recovery equipment into the ACA Maintenance Manager software.

A-40.3Service Contractor's Responsibility

Service contractors will certify that recovery equipment used by contractor's technicians has been properly documented, certified, labeled, and serviced according to EPA requirements by Signing the Contractor's Compliance Certification.

A-40.4 Recovery Unit Labeling

EPA requires that manufacturers must obtain certification from an EPA approved testing agency, for each model of recovery/recycle equipment, sold after November 15, 1993. The manufacturer must properly label units. The approved agencies are the Air Conditioning and Refrigeration Institute (ARI) and Underwriters Laboratories (UL). The label should be similar to the following:

"This equipment has been certified by ARI/UL to meet EPA's minimum requirements for recycling and/ or recovery equipment intended for use with [appropriate category of appliance--e.g., small appliances, HCFC appliances containing less than 200 pounds of refrigerant, all high-pressure appliances, etc.]."

Units manufactured before November 15, 1993 are considered grandfathered and may not have the ARI or UL label. Technicians need to know if they are using a grandfathered or ARI/UL certified unit to ensure proper recovery vacuum is achieved for the type of recovery unit they are using. See EPA Evacuation Chart D-40.7.

A-40.5 Maintenance Responsibility

Each certified technician shall have access to recovery equipment. The care and maintenance of this equipment will be their responsibility. If that unit does not function properly, the service technician shall notify their supervisor and replace the non-functioning recovery unit with one that functions before proceeding with the service.

Technicians and contractors shall service and maintain recovery/recycling equipment per manufacturer's specifications. Annual leak testing of recovery units shall be performed and the results documented with the Division Refrigerant Supervisor. Periodic testing shall be reported to Safeway using the Contractor's Compliance Certification form.

A-40.6 EPA Inspection Questions

Service technicians must be prepared to do the following if an EPA inspector or the Division Refrigeration Supervisor is on site.

1. Present a copy of your EPA Recovery Unit Acquisition Certification Form (OMB #2060-0256).
2. List of all your recovery units or be able to present them to record the nameplate data.
3. Demonstrate if your recovery units can achieve the required vacuum levels. Ensure technicians perform the leak tests, calibrate gages and can demonstrate the proper use of a recovery unit.

A-40.7 EPA Evacuation Level Chart

Type of Appliance	Recovery Units Manufactured Date	
	Before Nov. 15, 1993 Grandfathered Unit	After Nov. 15, 1993 ARI/UL Unit
R-22, R-402A/B, R-407A/B/C appliance, or isolated component of such appliance, normally containing less than 200 pounds of refrigerant.	0	0*
R-22, R-402A/B, R-407A/B/C appliance, or isolated component of such appliance, normally containing 200 pounds or more of refrigerant.	4	10
Very High Pressure Appliance R-410A/B, R-13, R-23, R-503	0	0
Other high-pressure appliance, or isolated component of such appliance, normally containing less than 200 pounds of refrigerant. R-12, R-114, R-134a, R-401A/B/C, R-500, R-502	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing more than 200 pounds of refrigerant. R-12, R-114, R-134a, R-401A/B/C, R-500, R-502)	4	15
Low-Pressure Appliance R-11, R-113, R-123	25	25 mm Hg absolute

* Inches of Hg vacuum relative to standard atmospheric pressure of 29.9 inches of Hg, except where noted.

For small appliances (less than 5 pounds), evacuation levels are as follows:

- ☑ for “grandfathered” recovery equipment, recover 80 percent.
- ☑ for new recovery equipment when the compressor is working, recover 90 percent.
- ☑ for new recovery equipment when the compressor is not working, recover 80 percent.
- ☑ for all appliances, evacuate to 4 inches of mercury vacuum.

Record-keeping Requirements

A-50.1 Objective

To detail the records which shall be kept to ensure compliance with the U.S. EPA regulations.

A-50.2 Importance of Record-keeping

The U.S. EPA has established record-keeping requirements for owners and operators of air conditioning and refrigeration equipment containing CFC and HCFC refrigerants. The EPA can request detailed reports of refrigerant usage, service, maintenance and disposal for the past three years. Failure to comply with these regulations can result in fines up to **$37,500 (or the current applicable fine)** per day per violation.

A-50.3 Record-keeping Method

Safeway requires that records be kept to comply with the laws, and to establish data for compiling accurate refrigerant asset management information. It is the responsibility of the Safeway technician or the maintenance contractor technician to fill out and route the appropriate information to both the Division Refrigerant Supervisor and RFSC Refrigerant Manager.

A-50.4 Required Plant/Site and Technician Records

Pursuant to Section 114(a) (1) of the Clean Air Act, 42 U.S.C. Section 7414(a) (1) and 40 CFR 82.166 (j) & (k), Safeway is required by the EPA to document the following information. The Division Refrigerant Supervisor will maintain the following records for at least three (3) years.

1. STORE REFRIGERANT EQUIPMENT INVENTORY: The Division Refrigerant Supervisor is responsible to make sure this has been filled out with refrigerant containing equipment categorized as under 50 pounds or over 50 pounds, to include comfort cooling, commercial refrigeration, industrial process refrigeration or other refrigeration equipment. The STORE REFRIGERANT EQUIPMENT INVENTORY form is to be posted on the wall of each compressor room in close proximity to the refrigerant usage logbook. If there are multiple compressor rooms, or the store has multiple distributed systems a copy of the SREI showing all equipment in the store needs to be located in each room or at each distributed system. If 2 or more distributed systems are located near each other, one copy for the group will be sufficient.
   - The SREI form must include refrigerant type and operating charge data. If the operating charge is unknown (split system, not listed on nameplate, etc.) then it must be calculated. Consult manufacturer data sheets, measure piping length, component capacity and detail calculations. An alternate method is to establish a charge by total circuit or system tonnage times a value of 1.5 pounds per ton. Each system must have the refrigerant type and operation charge clearly displayed in the compressor room using the approved Refrigerant Equipment Inventory form.
2. REFRIGERANT GAS INVENTORY: A complete refrigerant GAS inventory for all cylinders and drums of refrigerant on site including on going purchases/replacement of refrigerant must kept on or near each system. The REFRIGERANT GAS INVENTORY must be completed each time gas is added or removed from the location. If the location uses more than one type of refrigerant gas there must be an

inventory sheet for each variety. The REFRIGERANT GAS INVENTORY sheets are to be kept in a waterproof container in close proximity to the REFRIGERANT EQUIPMENT INVENTORY.

3. Safeway Refrigerant Tracking Form 2: This Form is to be filled out each time refrigerant gas is added to store appliances or systems. One Safeway Refrigerant Tracking Form 2 must be kept for each appliance or system that contains more than 50 lbs. of refrigerant gas. The Safeway Refrigerant Tracking Form 2 sheets are to be kept in a waterproof container in close proximity to the appliance or system identified on the form. One copy to be left on site and the original must be submitted with the Invoice to RFSC Refrigerant Compliance department within 10 days of leak event.
    - Leaks must be documented. Report leaks that cannot be repaired to both the Division Refrigerant Supervisor and RFSC Refrigerant Manager. In every case, Safeway has the responsibility to eliminate the leak. If the leak exceeds the regulatory leak-rate limit, Safeway shall do one of the following:
        - have the leak repairs completed within 30 calendar days of the original leak notification, or produce a written plan that details the equipment retrofit, or replacement within one year of the original leak notification. See Leaking Systems Section D-70 for specific equipment types.
4. Equipment Disposal Records. When equipment is removed from service the refrigerant and oil must be removed. Record the following information: date of recovery, technician name, equipment ID number, model number and serial number, refrigerant type and amount recovered, recovery unit used, vacuum level, record that oil was recovered, and disposal location (dumpster, scrap, etc.).

Refrigerant in a system is Safeway 's property regardless of its origin. Any refrigerant added which is not Safeway 's property must be documented. No refrigerant may leave the Safeway site without first being approved by the Division Refrigerant Supervisor or RFSC Refrigerant Manager.

5 Refrigeration/HVAC System Information Form. This form is used to provide information to setup Safeway's RMS program for new stores and remodels. (equipment additions, modifications) This form must be completed as accurately as possible and submitted to RFCS Refrigerant Compliance department.

6 Store Closing Form. Form SC must be completed for all closing stores at the time of refrigeration shut down. If gas is not recovered, enter NA in Gas Recovered column. Email or fax this completed form to Safeway RFSC.

A-50.5 Service technicians should be prepared to answer the following questions either from an EPA Inspector or the Refrigerant Supervisor they may request or ask:

1. A list of your technicians (with their certification information), contractors, new refrigerant vendors, recovered refrigerant reclaimer/disposer, recovery units and your over 50 pound equipment.
2. What type of over 50-pound equipment you have (comfort cooling, industrial process refrigeration, commercial or other refrigeration).

3. To see records of the amount of refrigerant you have purchased and added to the over 50 pound systems. They may even want to take an inventory of your new and recovered refrigerants.
4. How you determine when you have a leaking system.
5. Leak repair records on your over 50 pound systems.
6. Records of initial and follow-up verification testing on equipment leak repairs.

Disposal of Refrigerant, Lubricants and Equipment

A-60.1 Objective

To define the requirements and documentation for disposal and transfers of ownership of refrigerant used lubricants and refrigeration equipment from Safeway owned and operated facilities.

A-60.2 Refrigerant Ownership Transfer

When transferring refrigerant ownership to another company, document the transaction. Provide a service record of refrigerant recovered from equipment disposed of or from a contaminated system.

A-60.3 Used Lubricant Disposal

Refrigerant oil is considered a hazardous waste if it contains more than 4,000 parts per million (PPM) of dissolved refrigerant or 1 percent (10,000 PPM) of any F500 classified waste or acid contaminant *and* if it is not headed for reclamation. Most refrigerant oil that has been exposed to a refrigeration system or a recovery process still contains greater than 5,000 PPM of dissolved refrigerant and acid gas. Safeway will treat all refrigerant oils as if they were Hazardous waste.

The toxicity characteristic (TC) rule of 1990 subjected many more wastes to federal hazardous waste regulations. The TC rule sets regulatory limits on lead, benzene, and other contaminants. It is the contracted disposal service's responsibility to determine if used oil does or does not exceed the regulatory limits for TC constituents. Used oil that fails the TC must be disposed according to hazardous waste regulations.

Used oil from refrigeration equipment may contain appreciable levels of contaminants. It is important to maintain records that document the source of the oil and its ultimate disposal.

Caution: Do not mix refrigerant lubricants with other types of wastes!

The Division Refrigerant Supervisor must work with the Refrigeration Contractor or Refrigeration Equipment salvage contractor to identify the appropriate method of disposing, recycling, or reclaiming used refrigeration lubricant. If disposed as Hazardous Waste, the Refrigeration Contractor must notify the DRS and provide the appropriate paperwork for Hazardous Waste Disposal, such as a Hazardous Waste Manifest. The DRS or his/her designate, will sign Hazardous Waste Manifests. The DRS will send a copy of the Hazardous Waste Manifest to Corporate Environmental Affairs. Hazardous Waste Manifests, countersigned by the Treatment, Storage, Disposal Facility (TSDF) will be matched to the Generator Copy by the DRS or if set up, by the Refrigeration Contractor., Used waste oils will be disposed of at the approved facilities only.

Contact Corporate Environmental Affairs or Division Safety & Environmental Affairs Manager for state-specific requirements.

A-60.4 Equipment Disposal Guidelines

The EPA has established refrigerant equipment (appliance) disposal requirements in 40 CFR, 82.156, to ensure refrigerant is removed from equipment prior to scraping, shredding or landfill burial. Requirements exist for small appliances (< 5 pounds) and over 5-pound equipment.

Technicians and owners disposing of any refrigerant-containing equipment or small appliances must maintain records that show proper evacuation occurred. Use the EQUIPMENT DISPOSAL RECORD form. For appliances with less than 5 pounds there are several options. For large equipment with over 5 pounds, such as retail food refrigeration, cold storage warehouse refrigeration, rooftops, packaged units chillers, and industrial process refrigeration, the refrigerant shall be recovered in accordance with the EPA's evacuation requirements prior to dismantling or salvaging.

For small appliances a choice can be made to recover onsite or send the units to an EPA approved Scrap/recycling Company that has refrigerant removal capability.

When any refrigerant equipment is disposed, the refrigerant and oil must be removed from the equipment before its final disposal.

A-60.5 Equipment Disposal Record-keeping

The following information shall be documented for each on-site disposed of unit.

- ☑ Date of recovery.
- ☑ Equipment ID # or serial number(s).
- ☑ Refrigerant type and amount recovered.
- ☑ Technician's name & shop address
- ☑ Vacuum level achieved
- ☑ Organization receiving equipment.

No >5-pound equipment will be disposed of without removing the charge. An Environmental Disposal Tag similar to the following shall be attached to equipment being disposed. Without the tag, equipment may be refused at a landfill or scrap recycler.

ENVIRONMENTAL DISPOSAL TAG

ENVIRONMENTALLY HARMFUL REFRIGERANTS AND OIL HAVE BEEN REMOVED FROM THIS UNIT IN COMPLIANCE WITH SECTION 608 OF THE CLEAN AIR ACT

REMOVED BY: (PRINT)_____
COMPANY NAME: (PRINT)_____
ADDRESS: (PRINT)_____
_____
TELEPHONE:_____DATE:__/__/__
SIGNATURE_____

A-60.6 Small Appliances Sent Off-site with Charge Intact to Salvage Company

Small appliances, < 5 pounds, may be sent to an EPA approved salvage company with all systems intact (even if refrigerant leaked out).

Prior to sending any small appliances to salvage, you must determine in advance and receive a signed statement that the salvage yard has certified to the EPA that they recover the refrigerant before final disposal. Handle units with care to ensure none of the unit's systems or circuits is damaged during loading/off loading and in transit. Keep the signed statement from the Salvager on file.

Prepare a letter with the following information for appliances sent with the charge intact and provide a copy to the final disposer.

- ☑ Your company name, address, contact name
- ☑ Salvager's name and contact.
- ☑ Date of transaction.
- ☑ Unit model and serial numbers of all units sent.
- ☑ Refrigerant type.
- ☑ Include the following statement on the letter: "This equipment or appliance containing refrigerant is subject to the "safe disposal requirements" of the Clean Air Act of 1990 as implemented by 40 CFR Part 82, Subpart F, 82.150-166, requiring that refrigerants be removed from equipment and appliances prior to final disposal."

Leaking Systems Requirements

A-70.1 Objective

To define a leaking system and describe the procedures which will be followed by technicians servicing such systems (40 CFR Part 82.156, Final Rule Summary and Refrigerant Leak Repair Flow Chart).

A-70.2 Statement of Intent

Safeway employees or contractors shall not charge refrigerant into a known leaking system without following the procedures in this section.

A-70.3 Definition of a Leaking System

A system is defined as a "known" leaking system when one of the following conditions occurs:

- ☑ A review of readily available documentation determines that the system has a leak.
- ☑ Safeway or contractor technician has added refrigerant to the same system during a recent service visit except when gas is added due to a change in ambient conditions caused by a change in season and followed by the subsequent removal of refrigerant in the corresponding change in season, where both the addition and removal of refrigerant occurs within one consecutive 12-month period.
- ☑ The service technician can readily determine upon arrival for servicing the equipment that the system has a refrigerant leak.

Any system that is found to have a substantial leak must be repaired within thirty days. If a substantial leak is discovered and cannot be repaired within thirty days, a retrofit or retirement plan must be developed for the system. Notify both the Division Refrigerant Supervisor and RFSC Refrigerant Manager immediately on systems that cannot be repaired within the thirty-day limit.

It is against the law to knowingly vent or release refrigerants or non-exempt substitutes to the atmosphere while maintaining, servicing, repairing, or disposing of air conditioning or refrigeration equipment.

A-70.4 Substantial Leak Limits for Equipment Over 50 lb.

A substantial leak is currently defined as a leak rate corresponding to 15% for comfort cooling and other refrigeration systems or 35% for industrial process and commercial refrigeration of the total system charge in a one (1) year period. Safeway's Refrigerant Management software automatically calculates equipment leak rates of all equipment. To manually determine if a system is above the federal regulatory level rate use the following formula:

Annual Leak Rate:

(LB's of refrigerant added over the past 365 days ((or since leaks were last repaired, if that period is less then one year)) / LB's of refrigerant in full charge) X 100%

A-70.5Leak Repairs

If a substantial leak is identified by the service technician, it should be repaired immediately or as soon as possible. A leak is repaired when the leak rate is demonstrated to be reduced below the applicable 35%/15% substantial leak threshold; however, Safeway's goal is to reduce all leaks to zero where practicable.

Leak repairs must follow all proper EPA-approved procedures, including refrigerant evacuation and recovery/recycling, verification, and record keeping. It is Safeway's goal to perform leak repairs in a way that minimizes the additional venting of refrigerants. For example, where a leak cannot be repaired during the initial service call and requires additional refrigerant before repairs can be completed, the technician should consult with Safeway personnel to determine whether the system can be shut down pending repairs. Any time refrigerant must be added to a leaking system before repairs are completed, the technician should first obtain authorization from their supervisor, the Division Refrigerant Supervisor or the RFSC Refrigerant Manager. The authorization, along with the contributing factors delaying the repair of the leak, the reason why the system could not be shut down, and when and how the permanent repairs will be completed, shall be documented by contacting Safeway's RFSC Refrigerant Compliance department; the approval shall be noted in the repair record notes field for the open call.

NOTE: All follow-up repairs MUST be completed within 30 days.

A-70.6Leaks That Cannot Be Repaired in 30 Days

If good-faith repair attempts do not succeed in repairing a substantial leak within 30 days, a written retrofit/replacement plan must be developed within this initial 30-day period (that is, the date the unit first exceeded its trigger rate). The retrofit/replacement plan must address the entire system and must use a refrigerant with a lower or equivalent ozone-depleting potential. This plan should be entered in the Safeway Refrigerant Tracking Form 2 "Comments" box with the date and details of the reasons why the leak cannot be repaired. The plan must also include the plan of action for the retrofit or replacement and must be completed in one year from the plan date. The action plan must be submitted to both the Division Refrigerant Supervisor and RFSC Refrigerant Manager.

Leak Testing Requirements

A-80.1 Objective

To describe when leak testing is to be conducted, documented and the approved methods.

A-80.2 Leak Testing

When leak testing new installations or systems after repair, the technician shall use approved testing methods. Use the Refrigerant Tracking Form 2 to document all leak tests.

- ☑ Include leak testing during scheduled preventative maintenance inspections. Annually leak test each system with greater than 50 lbs. of refrigerant as a best practice. (Mandatory in SCAQMD –Los Angeles)
- ☑ Initial Leak Verification Test: Leak test all equipment on the conclusion of major repairs and prior to recharging the unit with refrigerant.
- ☑ Document the results of the initial verification leak tests on Safeway Refrigerant Tracking Form 2.
- ☑ Follow-up Leak Verification Test: Schedule, conduct and document follow-up verification leak tests for all systems with over 50 lbs. of refrigerant. This test must be completed within 30 days after the initial leak verification test was completed and with the unit operating at its normal load. This test may take place at the time service is conducted, but must be two separate test methods.
- ☑ Leak test all new contractor installed equipment prior to acceptance.

A-80.3 Acceptable Leak Testing Methods

The following are acceptable leak testing methods.

- ❑ Electronic Leak detector
- ❑ Ultrasonic Leak detector
- ❑ Pressurizing system to 10 PSIG with HCFC-22 then increasing pressure to safe level with dry nitrogen.
- ❑ Soap bubbles
- ❑ Halide torch detector
- ❑ Deep Vacuum - Low-pressure chiller (pull to 1mm hg. Ok if rise is < 2.5 mm hg in 12 hours)
- ❑ Hydrostatic Tube test kit - Low pressure chiller water tubes

Safety notice: Never use oxygen, high-pressure air or a flammable gas for leak checking. Oxygen and oil form an extremely explosive mixture.

Refrigerant Inventory Process

A-90.1 Objective

To define the processes on how refrigerant assets shall be managed and accounted.

A-90.2 EPA Purchase Records

The EPA requires that owner/operators track purchases of refrigerants used in units with over 50 pounds charge and maintain purchase records for three years. See Record keeping Requirements.

A-90.4 Storage of partially filled refrigerant tanks and cylinders

Refrigerant cylinders and tanks that are not full must have a Cylinder Usage tag similar to the one in section E-20.6 attached to the tank. It is the technician's responsibility to make sure the partially filled tank is weighed and the remaining refrigerant gas is correctly inventoried.

D-90.5 Storage of Refrigerants

The National Fire Protection Association (NFPA) codes and standards and local codes and standards along with ASHRAE Standard 15 – 1994 provide standards for storing refrigerants.

☑ Do not store over 330 pounds of refrigerant in mechanical equipment rooms (motors > 50 horsepower).

☑ Refrigerant stored in any room shall be secured to limit access to certified technicians only.

☑ For storage in non-mechanical rooms ensure adequate ventilation. If poor ventilation is a concern change storage location or have a registered mechanical engineer review and perform ASHRAE Standard 15 calculations to determine if refrigerant sensors and alarms are necessary in storage rooms.

☑ Preferred storage is in a large volume ground level warehouse type location within a securely fenced, locked area.

Contractor Requirements

A-100.1 Objective

To define requirements for managing refrigerant service contractors and contractors installing new equipment. The Division Refrigerant Supervisor, engineering and purchasing departments and RFSC shall work as a team to modify construction/renovation contracts and service contracts to meet the requirements of this chapter.

A-100.2 Contract Amendments

All Contractors must sign a copy to the Safeway Standard Service Provider Terms and Conditions. RFSC is responsible to keep a signed copy of the Contractor's Safeway Standard Service Provider Terms and Conditions.

Contractor shall provide only proper level EPA certified technicians using EPA certified and registered recovery/recycle units to perform work on Safeway refrigerant containing equipment.

Contractor shall submit the following information prior to starting any work and no less than annually thereafter.

Contractor will submit a signed copy of the Contractor's Compliance Certification no less frequently that one time a year. The Contractor's Compliance Certification will include

☑ A list of all service technicians' names and EPA certification numbers and level of certification (copies of EPA Certification Cards are acceptable).

☑ A list of all recovery/recycling units to be used and a signed statement that an EPA Recovery Unit Acquisition Certification form has been sent to the EPA (a copy of the form is acceptable).

☑ A signed letter/memo addressed to contractor's employees that requires contractor's technicians to provide the specified refrigerant related information written on the Safeway Refrigeration Information Work sheet.

A-100.3 Documentation and Record-Keeping

Contractor shall provide service records with all required information to the RFSC Refrigerant Compliance department using the Refrigerant Tracking Form 2. The information requested includes:

☑ Equipment ID tag number
☑ Location of equipment
☑ Refrigerant type and Unit Charge
☑ Date of service
☑ Service, repair or disposal description
☑ Quantity of refrigerant added
☑ Quantity of refrigerant removed, recovered, recycled, reclaimed or disposed of
☑ Quantity of lubricant disposed of, and method of disposal
☑ Detailed information on any leaks discovered and repaired
☑ Name(s) of EPA certified service technicians who performed work

A-100.4 Consequences for Non-Compliance

Safeway shall have the right to stop work under any contract at any time if the work fails to meet the EPA regulations.

Safeway shall have the right to withhold payment for services if the proper documentation of refrigerant work or related work is not completed.

A-100.5 Demolition Procedure for Equipment Removed by Contractors
Contract language for any refrigerant handling work by contractors shall include at a minimum.

A requirement for contractor to provide names of EPA certified technicians with their certification number and certification level who will be performing the refrigerant equipment demolition and refrigerant recovery.

Note: *If a properly certified contractor technician removes the refrigerant, and the unit is tagged as such then a non-certified person may perform the actual demolition.*

In all cases the contractor technician shall tag the unit that the refrigerant was removed and complete the EQUIPMENT DISPOSAL RECORD. A sticker similar to the one below shall be permanently attached to properly evacuated equipment that is no longer in use.

ENVIRONMENTAL SAFETY NOTICE

ENVIRONMENTALLY HARMFUL REFRIGERANTS AND OIL HAVE BEEN REMOVED FROM THIS UNIT IN COMPLIANCE WITH SECTION 608 OF THE CLEAN AIR ACT

REMOVED BY: (PRINT)_____
COMPANY NAME: (PRINT)_____
ADDRESS: (PRINT)_____
_____
TELEPHONE:_____DATE:__/__/__
SIGNATURE_____

The contractor using contractor provided refrigerant recovery cylinders shall transport or dispose of the recovered refrigerant. The quantity removed from each unit and from the site shall be documented on the EQUIPMENT DISPOSAL RECORD

Refrigerant Recovery Procedure

B-10.1 Objective

To define the procedures for recovering refrigerant; guidelines for proper filling of recovery cylinders and drums; recommended safety precautions; and an applicable evacuation levels chart.

B-10.2 Refrigerant Recovery Procedure

Follow the instructions for the specific recovery unit you are using and follow the general guidelines below where applicable.

Before Beginning Recovery:

1. Label all recovery cylinders with a refrigerant ID label for the type of refrigerant that it contains or will contain. Color-code all recovery cylinders as required: yellow top, gray body. Do not accept any exchange or new cylinders that are not color-coded or have an expired re-test date.
2. Maintain recovery equipment in proper working order. Change filter/dryers: a) after 200 lbs. of recovered refrigerant, b) when changing to a different refrigerant type, c) after refrigerant is recovered from a compressor burn-out, d) according to manufacturer's recommendations.
3. Leak-test each piece of recovery equipment every six months or per local regulations to ensure all units meet the EPA mandated evacuation levels. Note: Certified technicians can be asked during an EPA inspection to demonstrate proper operating procedures of a recovery unit.
4. Follow the manufacturer's operating procedures for the equipment being used. Make sure that copies of the operating and maintenance procedures are attached to the equipment. Original operating instructions should be maintained in a file.
5. Install filters, if necessary.
6. Pull a five-to-ten minute vacuum on the system using a micron gauge to ensure refrigerant parity and to evacuate non-condensables.
7. Check safeties.
8. Evaluate if the unit or interconnection hoses trap any refrigerant that might mix and contaminate refrigerant.
9. Using quick connect fittings on the refrigerant hoses, connect the recovery equipment and cylinder to the equipment being serviced. Evacuate refrigerant hoses.

Start the Recovery Procedure:

1. Begin to withdraw liquid or vapor or both. Not all mechanical equipment is designed for access to the liquid refrigerant. It is the responsibility of the technician to determine this and make the proper decision.

Note: The ability to withdraw liquid is preferable for these reasons:

- ☑ Liquid withdrawal removes many contaminants in suspension.
- ☑ Water-charged heat exchangers will not freeze as readily.
- ☑ Withdrawal may be quicker, though processing may not be.
- ☑ Liquid withdrawal will pull all system contaminants into the recovery unit, while vapor recovery leaves them in the serviced system if the machine recovers by pulling refrigerant through its internal circuitry.

1. If able to recover in the liquid mode, monitor the recovery process until all liquid is recovered, then change to vapor-recovery mode. At all times monitor the weight of refrigerant in the recovery cylinder.
2. Ensure that the EPA mandated vacuum levels are reached and record levels achieved.
3. Use a digital scale to record the amounts of refrigerant recovered. When recovering large amounts of refrigerant, use a drum or hanging scale.
4. Drain the oil separator to ensure no contamination of the refrigerant occurs.
5. After reaching the required vacuum level, isolate the equipment, turn off the recovery unit, and watch the gauges. An increase in pressure may indicate additional refrigerant in the equipment system requiring additional recovery.
6. When recovery is complete, secure all equipment and proceed with the repair.

If using:	Then:
An empty recovery cylinder	Evacuate to ensure no contamination occurs.
An unknown/unlabeled recovery cylinder that already contains refrigerant	Determine or test refrigerant quality and type.
A recovery unit equipped with an automatic low pressure shutoff	Wait and watch for at least five minutes after the unit shuts off when system goes into vacuum to determine whether all liquid and residual vapors have been withdrawn. A rise in pressure from a vacuum indicates more refrigerant to recover.
A recovery unit which automatically restarts on system pressure rise	Let it cycle until all possible refrigerant has been recovered. This type of unit must not be operated unattended.
A refrigeration unit with a suspected air-side or water-side leak	Recover only to atmospheric temperature to prevent air from entering the system and document this action.

When possible the refrigerant gas may be recovered into a different part of the refrigeration system provided there is no leakage into the section being repaired. The process must be documented on the Refrigerant Tracking Form 2 and entered in system.

B-10.3 Applicable Evacuation Levels

When servicing or disposing of equipment certified technicians must evacuate the refrigerant with an approved recovery unit or isolate the refrigerant gas into a separate part of the refrigeration system. Applicable evacuation levels specified in the chart below must be met.

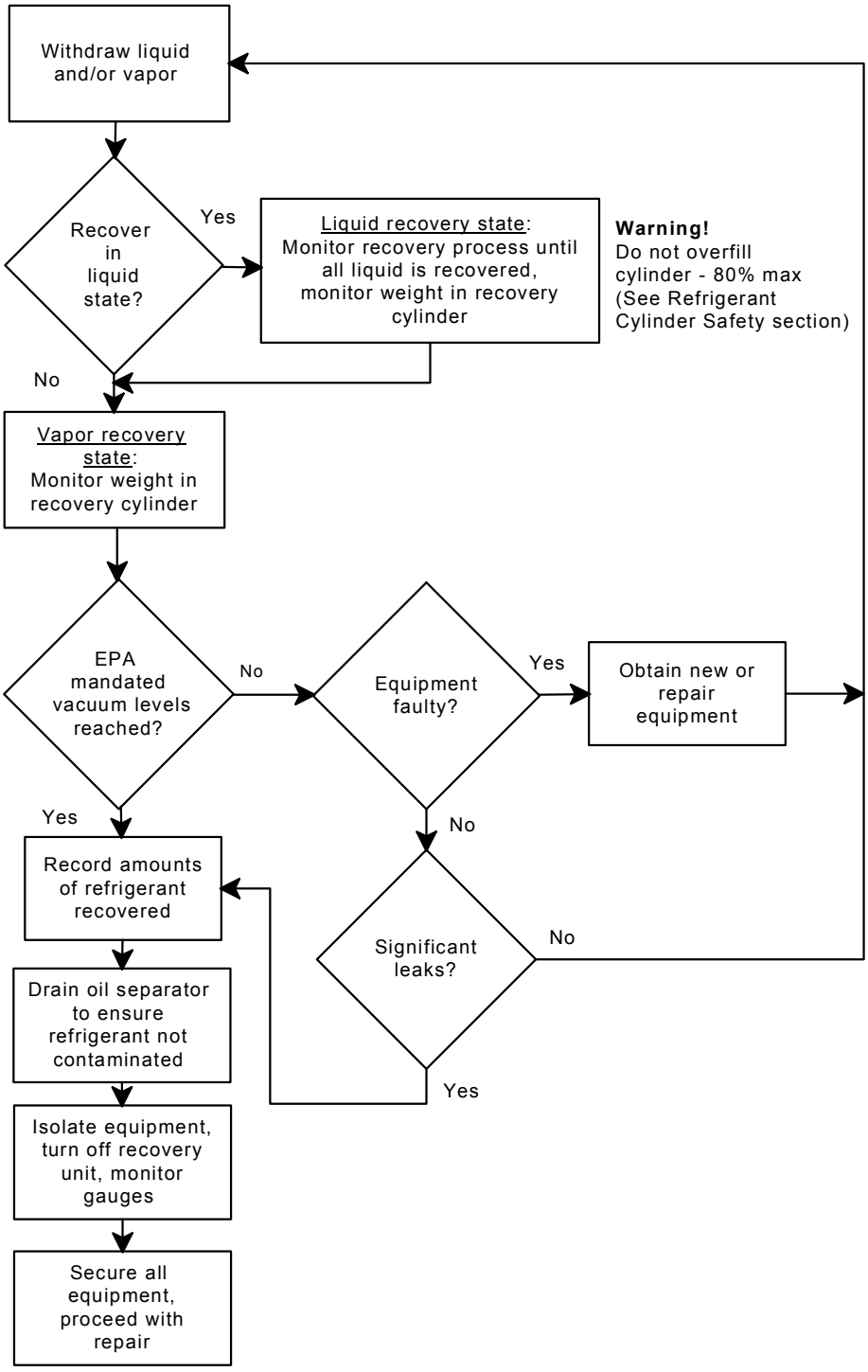
Type of Appliance	Recovery Units Manufactured Date	
	Before Nov. 15, 1993 Grandfathered Unit	After Nov. 15, 1993 ARI/UL Unit
R-22, R-402A/B, R-407A/B/C appliance, or isolated component of	0	0*

such appliance, normally containing less than 200 pounds of refrigerant.		
R-22, R-402A/B, R-407A/B/C appliance, or isolated component of such appliance, normally containing 200 pounds or more of refrigerant.	4	10
Very High Pressure Appliance R-410A/B, R-13, R-23, R-503	0	0
Other high-pressure appliance, or isolated component of such appliance, normally containing less than 200 pounds of refrigerant. R-12, R-114, R-134a, R-401A/B/C, R-500, R-502	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing more than 200 pounds of refrigerant. R-12, R-114, R-134a, R-401A/B/C, R-500, R-502)	4	15
Low-Pressure Appliance R-11, R-113, R-123	25	25 mm Hg absolute
* Inches of Hg vacuum relative to standard atmospheric pressure of 29.9 inches of Hg, except where noted.		

For small appliances (less than 5 pounds), evacuation levels are as follows:

- ☑ for “grandfathered” recovery equipment, recover 80 percent.
- ☑ for new recovery equipment when the compressor is working, recover 90 percent.
- ☑ for new recovery equipment when the compressor is not working, recover 80 percent.
- ☑ for all appliances, evacuate to 4 inches of mercury vacuum.

B-10.4 Refrigerant Recovery Procedure Process Diagram



Refrigerant Cylinder Identification

B-20.1 Objective

To describe the color and labeling procedure for refrigerant cylinders.

B-20.2 Refrigerant Container Color

Containers for recovered refrigerant should be colored according to ARI Guideline K-1997, Containers for Recovered Fluorocarbon Refrigerants. This guideline requires a color scheme of gray with a yellow cap. Since it applies for all recovered refrigerants, it is imperative that recovered refrigerant containers be marked or tagged to avoid recovering different refrigerants into the same cylinder.

- ☑ Cylinders with non-removable collars: the body shall be gray, the collar shall be yellow.
- ☑ Cylinders with removable caps: they body shall be gray, the shoulder and cap shall be yellow.
- ☑ Drums: the drum shall be gray, the top head shall be yellow.
- ☑ Tons: the body shall be gray, the ends and chimes shall be yellow.

E-20.3 Virgin Refrigerant Container Color and Class Matrix

Refrigerant	Color	PMS #	Class
11	Orange	021	I
12	White	None	II
13	Light Blue (Sky)	2975	III
13B1	Pinkish-Red (Coral)	177	III
14	Yellow-Brown (Mustard)	124	III
22	Light Green	352	II
23	Light Blue-Grey	428	III
113	Dark Purple (Violet)	266	I
114	Dark Blue (Navy)	302	II
116	Dark Grey (Battleship)	424	III
123	Light Blue-Grey	428	I
124	Deep Green (DOT Green)	335	I
125	Medium Brown (Tan)	465	I
134a	Light Blue (Sky)	2975	II
401A	Pinkish-Red (Coral)	177	II
401B	Yellow-Brown (Mustard)	124	II
401C	Blue-Green (Aqua)	3268	II
402A	Light Brown (Sand)	461	III
402B	Green-Brown (Olive)	385	III
404A	Orange	021	III
407A	Lime Green	368	III
407B	Cream	156	III
407C	Medium Brown (Brown)	471	III
408A	Medium Purple (Purple)	248	III
409A	Medium Brown (Tan)	465	II
Refrigerant	Color	PMS #	Class
410A	Rose	507	III

Source:
ARI Guidelines N-1995,
ARI Guidelines K-1997

PMS =
Pantone® Matching System, an international printing, publishing and packaging color language.

410B	Maroon	194	III
500	Yellow	109	II
502	Light Purple (Lavender)	251	II
503	Blue-Green (Aqua)	3268	III
507	Blue-Green (Teal)	326	III
717, NH_3	Silver		
Any Recovered	Yellow/Gray		

B-20.4 Refrigerant ID Labels and Usage Tags

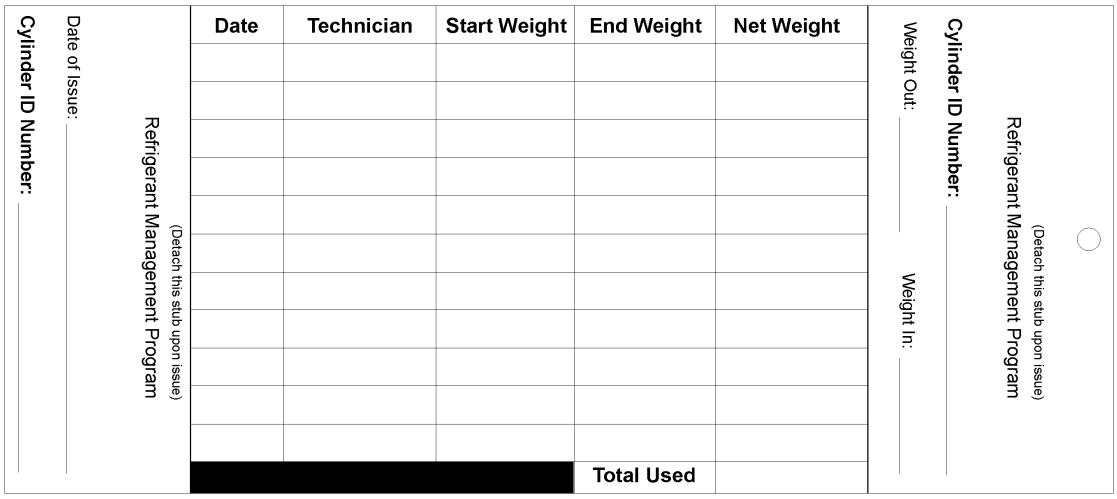
It is essential to know what refrigerant is in a given cylinder. Therefore, recommended guidelines have been established for labeling refrigerant cylinders. ARI Guideline N-1995, Assignment of Refrigerant Container Colors, sets color standards for existing, new and reclaimed refrigerants. Purchase and place an appropriate color coded refrigerant ID labels for each refrigerant recovery cylinder, tank or drum (available from most local distributors). For each recovered refrigerant type, mark the cylinder with refrigerant condition (good, unknown, contaminated). If you have mixed refrigerants mark it as mixed and do not use.

B-20.5 Sample Refrigerant Identification Labels

Each container shall be marked will a DOT proper shipping name and an appropriate UN identification number. Refer to Refrigerant Transporting/Shipping section for more information.

B-20.6 Sample Cylinder Usage Tag

Utilize a refrigerant usage tag when multiple users/shifts utilize a refrigerant cylinder, tank or drum. The following is a sample.



Contamination Avoidance

B-30.1 Objective

To define the practices which shall be followed to avoid contaminating a recovery container.

B-30.2 Statement of Intent

Refrigerant shall not be mixed. Refrigerant that is contaminated can cause future service problems. Every effort to avoid contamination shall be made. Reclamation centers will not accept mixed refrigerants. Safeway can be charged for disposal of the mixed gases.

B-30.3 Standard Procedures

Remove and dispose of recovery/recycling filters when changing refrigerants. Filters include Cartridge Filter cartridges, Inline filters (both suction and liquid), and Bullet filters.

Properly label refrigerant cylinders in accordance with ARI Guidelines K. Refer to the Refrigerant Cylinder Identification for specifics.

Recover residual refrigerant from the service gauge set and hoses after each service procedure *or* have a gauge set for each type of refrigerant.

Properly prepare the recovery/recycling machine to receive each refrigerant per manufacturer's specifications. This includes completely removing the residual refrigerant left in the machine. Before changing refrigerant types, draw a vacuum to assure that all contaminates in the equipment have been removed.

Properly prepare the recovery cylinder to receive each refrigerant per manufacturer's specifications. This includes completely removing the residual refrigerant left in the cylinder. Before changing refrigerant types, draw a vacuum to assure all possibility of contaminants in the refrigerant has been removed.

Used Refrigerant Handling

B-40.1 Objective

To define which of the following three options should be used when dealing with refrigerant that has been recovered from a system.

Option 1: Put refrigerant back into the system without recycling it.

Option 2: Recycle refrigerant and put it back into the system from which it was removed or return to inventory for use in Safeway's owned equipment.

Option 3: Send refrigerant to a certified reclaimer or vendor.

B-40.2 Introduction

If the refrigerant is put back into the system it was removed from, or saved for use in an other system, the recovered refrigerant contaminant levels shall not exceed the levels in the Maximum Contaminant Level Table. If the contaminant levels are exceeded, the refrigerant should be recycled or reclaimed, or new refrigerant used. Since it is not always practical or feasible to confirm that a recovered or recycled refrigerant meets these levels by test, these guidelines have been written to give the servicing personnel some criteria to help determine which of the three options covered in the "Objective" should be chosen.

There are several factors that need to be considered when deciding what to do with recovered refrigerant. These factors include:

1. Reason system is being serviced,
2. Condition of refrigerant and system,
3. Equipment manufacturers' policies,
4. Refrigerant cleaning capability of recycling equipment.
5. Feasibility and Maintenance departments' preference.

After all of these factors have been evaluated, the service technician should be able to make a decision.

General Comments

Regardless of whether recycled refrigerant or new/reclaimed refrigerant is put into a system, the system must be properly cleaned and evacuated prior to putting refrigerant back into the system. Manufacturer's recommended service procedures should be followed to ensure that the system is free of contamination before any refrigerant is put into the system. At a minimum, all driers in the system should be replaced and systems with compressor burnouts should have a suction line filter/drier added to assist in removing acids that will be in the oil that remains in the system.

If the refrigerant is removed from a system, recycled and returned to a system, there are several other things to keep in mind. Recovery cylinders must be kept clean so that refrigerant that has been recycled does not become contaminated again when it enters the recovery cylinder.

Cleaning and maintaining recycling and recovery equipment regularly, especially after the equipment has been used on jobs with very contaminated refrigerants, is very important to ensure that the contamination from the previous job does not transfer to the next job.

B-40.3 Recycled Refrigerants

Refrigerants that are recovered and recycled should not exceed the Maximum Contaminant Levels before reuse as shown in the following table:

Maximum Contaminant Levels of Recycled Refrigerants in Same Owner's Equipment			
Contaminants	**Low Pressure Systems**	**R-12 Systems**	**All Other Systems**
Acid Content (by wt.)	1.0 PPM	1.0 PPM	1.0 PPM
Moisture (by wt.)	20 PPM	10 PPM	20 PPM
Non-Condensable Gas (by Vol.)	N/A	2.0%	2.0%
High Boiling Residues (by Vol.)	1.0%	0.02%	0.02%
Chlorides by Silver Nitrate Test	No turbidity	no turbidity	no turbidity
Particulates	Visually clean	visually clean	visually clean
Other Refrigerants	2.0%	2.0%	2.0%
Note: To insure that the recycling equipment maintains its demonstrated capability to achieve the above levels, it must be operated and maintained per the equipment manufacturer's recommendations.			

Laboratory testing is your only sure assurance that contaminant levels are not exceeded, but it may be accomplished if the recycle unit is capable of recycling refrigerants to the levels in the table.

B-40.4 Mixed Refrigerants

Mixed refrigerants refer to the situation where refrigerants become unintentionally mixed as opposed to commercially available zeotropic or azeotropic blends. Mixed refrigerants:

- ☑ Have adverse impact on operating systems performance and capacity.
- ☑ Affect lubrication, equipment life operating costs and warranty costs.
- ☑ Have a higher cost for disposal.

Determining the Presence of Mixed Refrigerants

Determine the presence of mixed refrigerants with a laboratory test; or check the saturation pressure and temperature of the refrigerant in the system and compare with the published values for this refrigerant in a pressure-temperature chart.

Blend Refrigerants

B-50.1 Blend Refrigerants/Retrofits

Only use a retrofit refrigerant, which has been approved by the original air conditioning manufacturer and as approved by the EPA's "SNAP" list.

System modifications may include hoses, a high-pressure cutout device, seals, desiccant, lubricant, refrigerant control replacement, increased condenser capacity and other modifications as determined by the equipment manufacturer. Not following the OEM recommendation may result in system damage, loss of performance and affect the warranty.

It should be noted that blend refrigerants may not be compatible with CFCs, HCFCs, or HFCs and may require separate service equipment.

There are two situations that a technician may encounter when working with blends:

Blend Fractionation

Blend fractionation is when one or more refrigerants of the same blend leak at a faster rate than the other refrigerants in the same blend. This different leakage rate is caused from the different partial pressures of each constituent in the near-azeotropic mixture. Fractionation also occurs because the blends are near-azeotropic mixtures and not pure compounds, or pure substances like CFC-12. Fractionation was initially thought of as a serviceability barrier because the original refrigerant composition of the blend's constituent may change over time from leaks and recharges.

To avoid fractionation, charging of a refrigeration system incorporating a near-azeotropic blend should be done with **liquid** refrigerant whenever possible. To ensure that the proper blend composition is charged in the system, it is important that only liquid be removed from the charging cylinder. Cylinders containing near-azeotropic blends are equipped with dip tubes, allowing liquid to be removed from the cylinder in the upright position. When adding liquid refrigerant to an operating system, make sure liquid is throttled, thus vaporized, into the low side of the system to avoid compressor

damage. A throttling valve can be used to ensure that liquid is converted to vapor prior to entering the system.

Blend Temperature Glide

Near-azeotropic ternary blends have temperature glides (a range of condensing or evaporating temperatures for one pressure) when they evaporate and condense. A pure compound like CFC-12, boils and condenses at a constant temperature for a given pressure. Since the blends are near azeotropic, they will have some "temperature glide" or a range or temperatures in which they will boil and condense. The amount of glide will depend on system design and blend makeup. Temperature glide can range from 2 to 12 degrees Fahrenheit. Since the saturated liquid temperature and the saturated vapor temperature for a given pressure are not the same, the constituent in the blend with the highest vapor pressure (lowest boiling point) will reach 100 percent saturated vapor before the other constituents. Sensible heat will not be gained by this refrigerant while the other constituents in the blend are still evaporating. This same phenomenon happens during the condensing cycle.

Some systems will not be affected by this temperature glide because it is design dependent. System design conditions must be evaluated when retrofitting with a blend. Because of the high percentage of HCFC-22 in some blends, the compressor may see higher condensing saturation temperatures and pressures when in operation. Because HCFC-22 has a relatively higher heat of compression when compared to other refrigerants, a higher discharge temperature may be experienced.

B-50.2 Refrigerant Blend Nomenclature

Refrigerant blends are designated by their refrigerant numbers and weight proportions. The refrigerants will be listed first in order of increasing boiling points, followed by their respective weight percentages.

The blends also have refrigerant "R" numbers:

The 400 series blends represent the near-azeotropic refrigerant blends.
The 500 series blends represent the azeotropic blends.

For example:

R-401 would indicate that the blend is a near-azeotrope, and the 1 would indicate that it is the first 400 series blend commercially produced.

R-502 would indicate that the blend is an azeotrope, and the 2 would indicate that it is the second 500 series blend commercially produced.

B-50.3 SNAP Approved Refrigerant Replacement Blends

Blend	Producer	Base	Lubricant	Application
R-401A 22/152a/124 (53/13/34% wt.)	Dupont MP39	HCFC	Alkylbenzene	Medium Temperature R-12
R-401B 22/152a/124 (61/11/28% wt.)	Dupont MP66	HCFC	Alkylbenzene	Transportation Refrigeration and Low Temperature R-12
R-402A 22/125/290 (38/60/2% wt.)	Dupont HP80	HCFC	Alkylbenzene & some Ester	Low and Medium Temperature R-502
R-402B 22/125/290 (60/38/2% wt.)	Dupont HP81	HCFC	Alkylbenzene	Low and Medium Temperature R-502
R-403B 22/218/290 (55/39/5% wt.)	Rhone Poulenc ISCEON69L	HCFC	Mineral Alkylbenzene Polyol Ester	Low Temperature R-13 & R-503
R-404A 125/143a/134a (44/52/4% wt.)	Dupont HP62 ELF Atocem FX70	HFC	Polyol Ester	Low and Medium Temperature RefrigerationR-502
Blend	**Producer**	**Base**	**Lubricant**	**Application**
R-406A 22/142b/600a (55/41/4%)	GHG12 National Refrigerants	HCFC	Mineral Alkylbenzene	Stationary R12 Refrigeration. R-12
R-407A 32/125/143a	ICI Americas KLEA 60	HFC	Ester	Low and Medium Temperature R-502
R-407C 32/125/134a (30/10/60% wt.)	Dupont Suva 9000 KLEA 66	HFC	Polyol Ester	Air Conditioning R-22
R-408A 22/125/143a (47/7/46% wt.)	FX10 ELF Atocem	HCFC	Mineral Alkylbenzene Polyol Ester	Low and Medium Temperature R-502
R-409A 22/124/142b (60/25/15% wt.)	FX56 ELF Atocem	HCFC	Mineral Alkylbenzene Polyol Ester	Low and Medium Temperature R-12
R-410A 32/125 (60/40% wt.)	Allied Signal AZ-20	HFC	Ester	High & Medium Temp. Refrigeration., Air Conditioning (Azeotrope) R-22
R-507 125/143a (45/55% wt.)	Allied Signal AZ-50	HFC	Ester	Low and Medium Temperature (Azeotrope) R-502
R-508a 23/116 (39/61% wt.)	National Refrigerants	HFC	Polyalpha Olefin Alkylbenzene Mineral	Very Low Temperature Refrigeration. R-503
R-508b 23/116 (46/54% wt.)	Dupont Suva95	HFC	Polyolester Manufacturer recommendation	Very Low Temperature Refrigeration. Cascade R-503, R-13
Note: Constituent percentages and lubricant applications may change or vary as research continues.				

Lubricants

B-60.1 Objective

To provide general information on the use of lubricants in systems containing refrigerants and define the EPA maximum pressure for changing oil.

B-60.2 EPA Pressure Limit for Removing Refrigerant Oil

When changing oil, five (5) PSIG is the maximum EPA legal pressure a system may be subjected to [40 CFR Part 82 Subpart F §82.156 (a)(2) C].

B-60.3 Lubricants

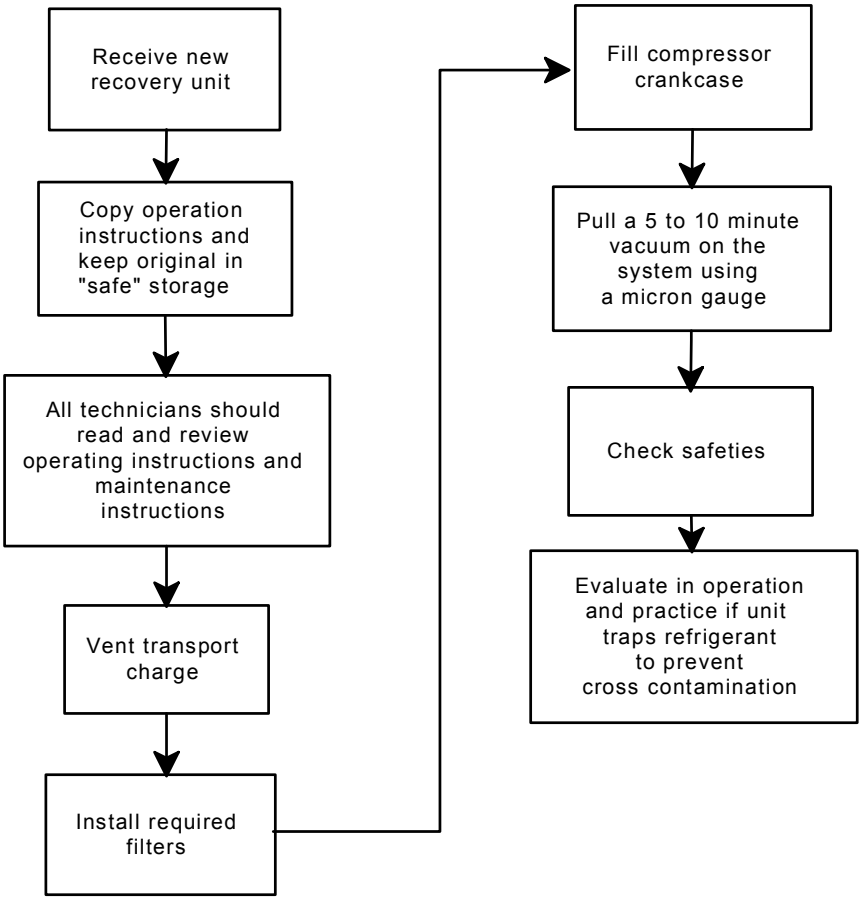
CFC and HCFC systems have traditionally used mineral oil lubricants. HFC-134a and the other alternative refrigerants use several types of synthetic lubricants. (Polyalkylene Glycol, Polyol Ester, Alkylbenzene) The manufacturer's label should identify the correct type of lubricant required. Mixing of synthetic lubricants may also cause system problems. Use only the lubricant specified by the AC/R system manufacturer.

General Processes

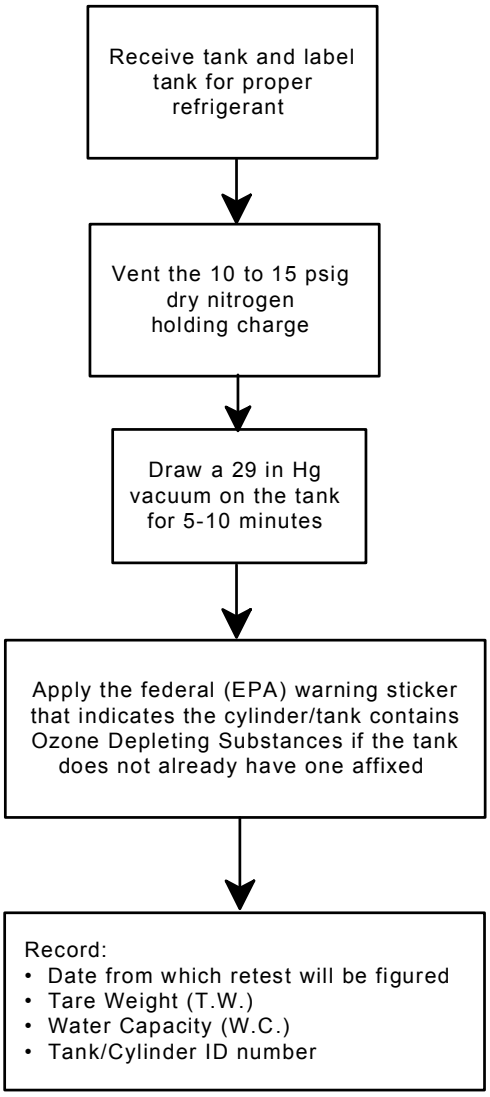
B-70.1 Objective

The following general processes have been developed to provide guidance to the technician. The actual process the technician uses will be dependent on their equipment and circumstances. These diagrams are intended to provide general information only.

B-70.2 Preparation of a New Recovery Unit

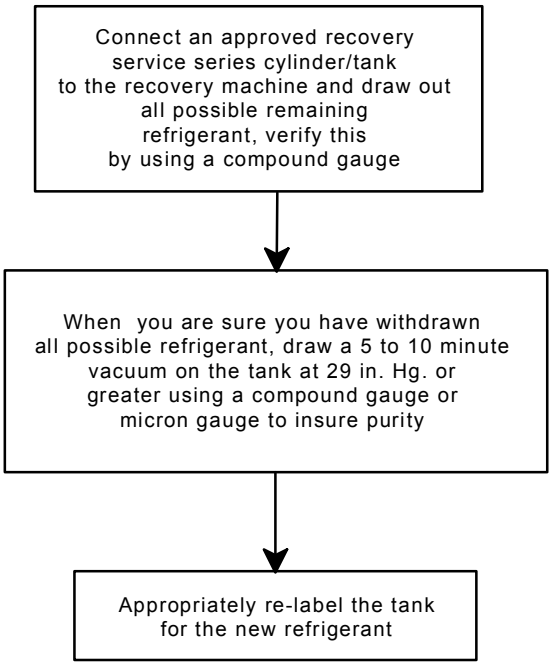


B-70.3 General Procedure for Preparing a New Recovery Cylinder



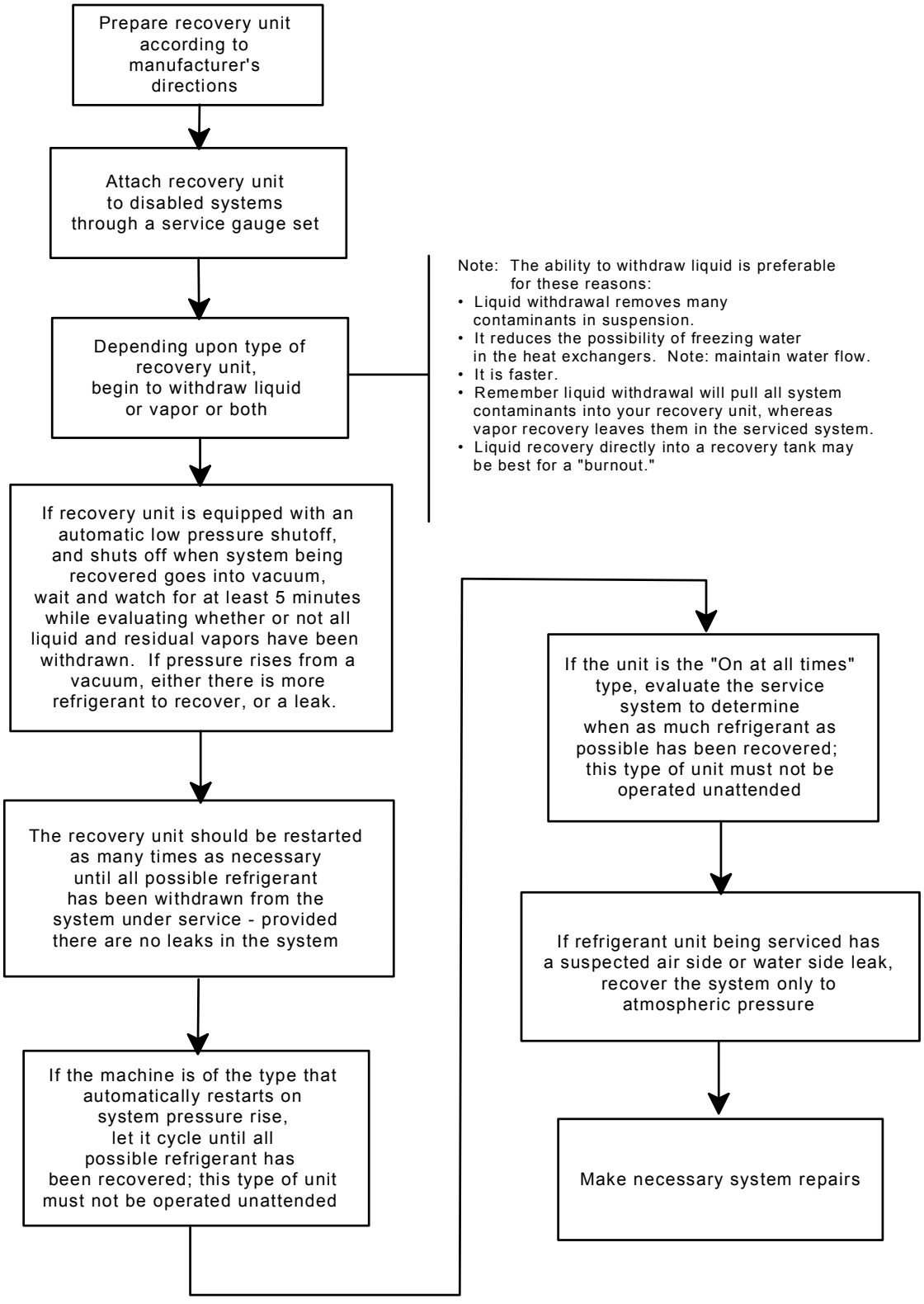
B-70.4 Sample Refrigerant Identification Labels

B-70.5 General Procedure for Switching Refrigerants in a Recovery Cylinder/Tank

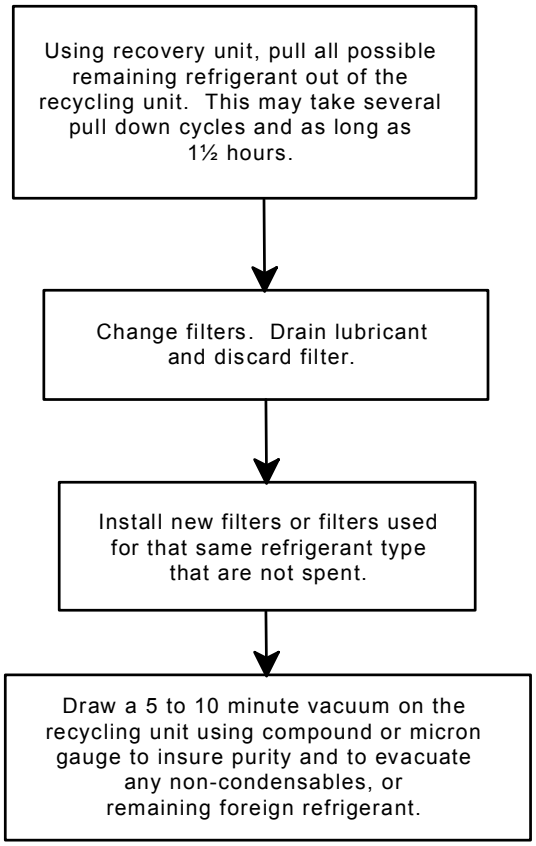


Note: It is recommended that a separate recovery cylinder/tank for each refrigerant be used to minimize cross contamination

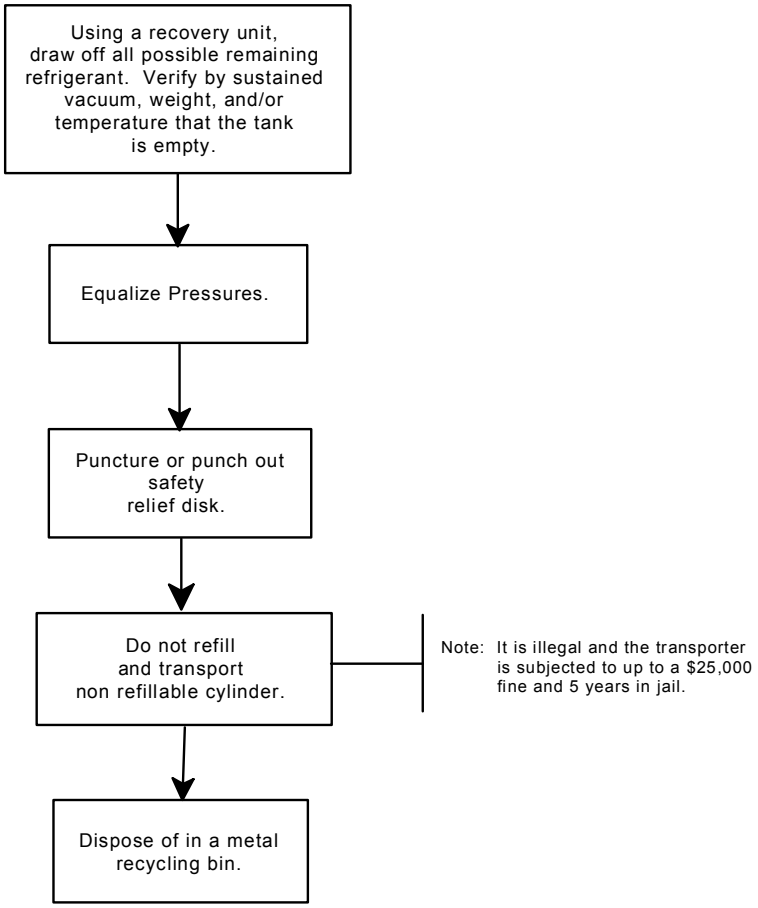
B-70.6 General Procedure for Recovering Refrigerant from a Unit Prior to Servicing



B-70.7 General Procedure for Switching Refrigerants in a Recovery Unit



B-70.8 Procedure for Disposal of Non Refillable Refrigerant Cylinders



Accidental Refrigerant Release

B-80.1 Objective

To define the federal regulations 40 CFR Part 82 requirements on refrigerant venting and accidental refrigerant releases.

B-80.2 Venting Prohibitions

It is against the law to knowingly vent refrigerants or non-exempt substitutes to the atmosphere while maintaining, servicing, repairing, or disposing of air conditioning or refrigeration equipment. Acceptable releases are:

- ☑ A “de minimus” quantity released in the course of making a good faith attempt to recapture, and recycle or safely dispose of refrigerant. An example of a de minimus leak would be the quantity of refrigerant released while disconnecting a manifold gauge set.
- ☑ Refrigerants emitted during the normal course of operation of air conditioning and refrigeration equipment such as purge unit operation.

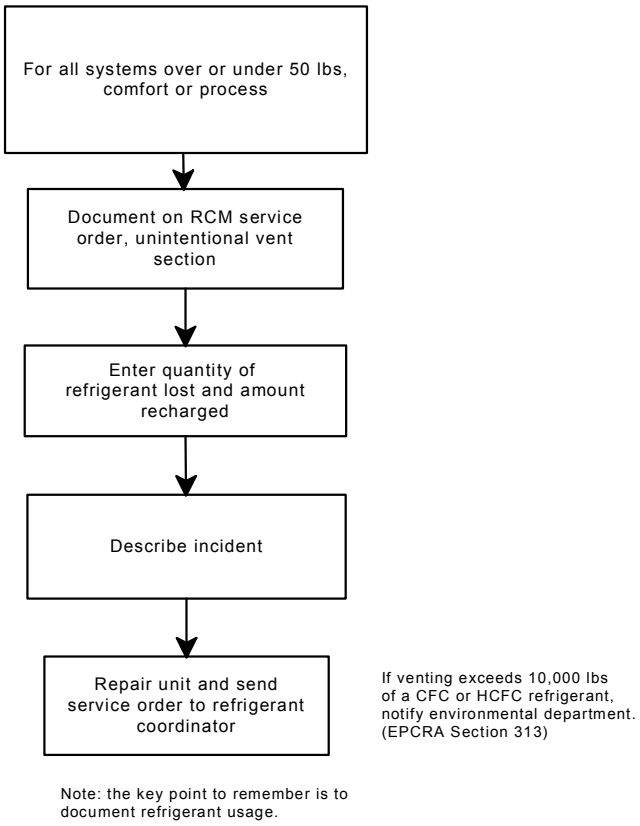
☑ Mixtures of nitrogen and trace quantities of R-22 that are used as a holding charge or as a leak test gas, because in these cases they are not used as refrigerant.

B-80.3 Accidental Refrigerant Release Report

If an accidental refrigerant release occurs such as human caused accidental damage to a refrigerant line, service valve or cylinder the incident shall be documented on the Refrigerant Tracking Form 2 and entered into RMS System.

NOTE: Do not record mechanical failures of a unit as an accidental release because the quantity of refrigerants entered is not used in leak rate calculations.

E-80.5 Accidental Refrigerant Release Flow Chart



Refrigerant Cylinder Safety

B-90.1 Background

Safety shall be the first priority. The following guidelines provide information on cylinder safety.

B-90.2 Refrigerant Cylinder Safety

Never use a standard disposable 30 lb. cylinder (the type of container in which virgin refrigerant is sold) to recover refrigerant. Use only DOT CFR Title 49 or UL-approved

storage containers for recovered refrigerant (containers marked DOT 4BW or DOT 4BA).

B-90.3 Thermal Expansion

- ☑ Safety codes recommend that closed cylinders not be filled over 80% of the volume with liquid. The remaining 20% is called head pressure room.
- ☑ Refrigerant expands when it gets warm.
- ☑ When refrigerant expands some of it boils, thus increasing the pressure.
- ☑ Remaining liquid expands rapidly and may fill the container 100% full with liquid.
- ☑ Pressure within the cylinder increases at a slower rate if there is room for the gases. The pressure increases to the liquid saturation.
- ☑ A cylinder filled with 80% liquid is relatively safe. Do not fill cylinders over 80%.

Cylinder Temp.	60º F	70º F	100º F	130º F	150º F
	Space Occupied with Liquid				
Starting with Cylinder 80% Full	80%	81%	83%	90%	94%
Starting with Cylinder 90% Full	91%	92%	96%	Cylinder is 100% full Liquid @113º Pressurizes Very Rapidly	Explosion
DO NOT OVERFILL REFRIGERANT CYLINDERS					

B-90.4 Guidelines for Proper Filling of Recovery Cylinders

Cylinder integrity

Prior to filling a cylinder, inspect for signs of damage such as dents or corrosion. Do not fill a damaged or out of date cylinder. Use only recovery cylinders identified for used refrigerant. Do not use cylinders designed for virgin refrigerant. Recovery cylinders should comply with Department of Transportation (DOT) specification 4BA300 and 4BW.

If a cylinder does not hold a vacuum, (29 in hg for 20 minutes) the cylinder should not be used.

Cylinder test date

A recovery cylinder should not be filled if today's date is more than five years after the date of manufacture or after the retest date stamped on the shoulder. If the cylinder has been tested the test date will look similar to the following example:

B2

12 93

22

The designation in the above example indicates the cylinder was re-tested in December 1993 by re-tester number B222. Enter the date the cylinder is to be retested in the ACA Inventory Manager

Legal fill

Liquid used refrigerant will expand when exposed to high temperatures. Thermal expansion of the liquid in an overfilled cylinder could rupture it. When filling recovery cylinders, carefully monitor the gross weight to ensure this maximum is never exceeded.

Gross Legal Fill Weight (GLFW) for every cylinder, container, cylinder, or other vessel is always 80 percent of capacity. The responsibility rests with the technician to shut off the transfer machine at 80 percent cylinder fill for cylinders that don't do so automatically. By weight, the formula is as follows:

GLFW = (WC x 0.8) + TW

WC = Water Capacity: the weight of the fluid that would fill the cylinder 100 percent.
TW = Tare Weight: the weight of the empty cylinder.

Both these weights plus the test date will be stamped on the collar or chine of the cylinder.

For HCFC-22 and/or refrigerants in cylinders, which will encounter large temperature fluctuations, the automotive sector's formula is recommended to allow more head/expansion space in the cylinder:

GLFW = (WC x 0.6) +TW

Look at regularly, but do not trust exclusively, a percent-fill gauge or an automatic shut-off device.

Vapor pressure

When a compressor is used to recover used refrigerant vapors from a refrigeration unit, monitor cylinder pressure to avoid exceeding the relief valve set pressure (450 PSIG). To ensure optimum safety, a maximum cylinder pressure of 300 PSIG during the filling operation is recommended.

Sealing

After filling, verify that all cylinder valves are closed properly to prevent leaks during subsequent handling and shipping. If necessary, leak test the valve with soapy water.

B-90.5 Guidelines for Filling of Recovery Drums

Recovery drum

The recovery drum must be a tight-head drum, 55-, 20-, or 10-gallon capacity, of 16-gauge steel made to DOT 17E specifications. If a drum is reused, thoroughly inspect it for damage and identify it as a recovery drum by wrapping a strip of yellow tape around the upper one-third of the drum and re-labeling it. Never store used refrigerant drums in open sunlight or in hot areas with poor ventilation. Adequate ventilation is mandatory for technician safety.

Liquid overfilling

Liquid used refrigerant will expand when exposed to high temperatures. Thermal expansion of the liquid in an overfilled drum could cause it to bulge or rupture. To prevent this, fill drums of used refrigerant so that the liquid level is below the top of the drum. The recommended distance between the liquid level and the top of the drum depends on the drum size, as indicated below:

Drum size, gallons	Recommended distance, in. (cm)
55	6 (15)
20	3 (7.6)
10	2 (5.0)

Filling temperature

When hot used refrigerant is loaded into a drum and the drum is properly sealed, a vacuum will form above the liquid as it cools. In extreme cases, the drum may collapse. To avoid this, observe a maximum filling temperature of 13°C (55°F).

Sealing

After filling the drum, verify that the bung is properly installed and tightened to prevent leaks during subsequent shipping and handling. Weigh filled recovery drums prior to shipping.

B-90.6 Precautions for Recovery Drums

Use personal protective equipment such as side shield glasses, gloves, safety shoes, and hardhat when filling and handling containers.

Be aware that inhalation of high concentrations of used refrigerant vapor or mist can be harmful and may cause heart irregularities, unconsciousness, or death. Since vapor is heavier than air, avoid low areas without suitable ventilation or refrigerant-specific monitors.

Refrigerant Overview

C-10.1 Background

A refrigerant is a fluid (liquid or gas), that transfers heat away from one point to another. In a typical vapor compression system, the refrigerant changes phase. That is, it changes from a liquid to a gas when it absorbs heat and changes back to a liquid when it gives up heat. Most chemicals have the ability to change from a liquid to a gas, but only a few chemicals do so in a manner that makes them good refrigerants.

Most refrigerants used today for vapor compression air conditioning are called halocarbons. A halocarbon is a hydrocarbon molecule containing one or more halogens. The halogen elements most commonly used in refrigerants are chlorine (Cl) and fluorine (F). Refrigerants used in centrifugal chillers are halocarbons based on methane and ethane molecules.

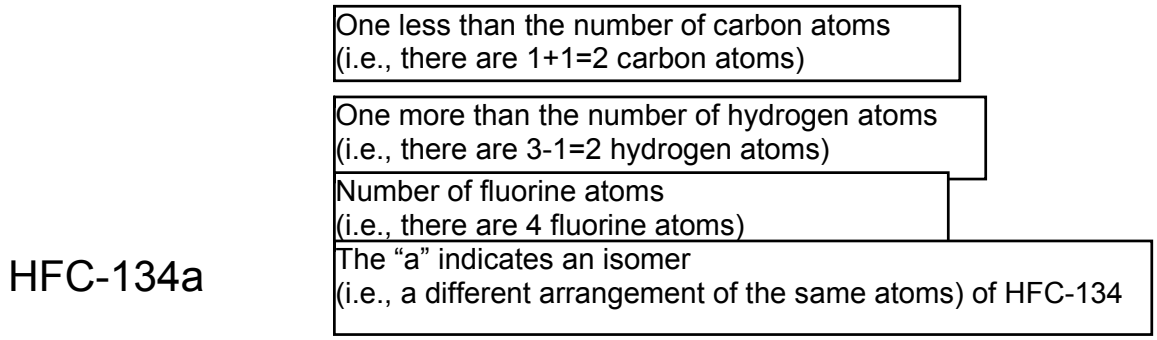
C-10.2 Refrigerant Nomenclature

Most refrigerants in common use *are* single chemicals.

Single component refrigerants have an "R-" designation of two or three numbers, which reflect its chemical composition.

- The first digit (of a refrigerant with three numbers) is one unit lower than the number of carbon atoms in the molecule. If the molecule contains only one carbon atom, the first digit is omitted.
- The second digit is one unit greater than the number of hydrogen atoms in the molecule.
- The third digit is equal to the number of fluorine atoms in the molecule.

For example: HFC-134a - 1,1,1,2-tetrafluoroethane (CH_2FCF_3)



Some refrigerants, however, are comprised of two or more chemicals. R-500 and R-502 are two examples. R-502 is composed of 48.8% (by weight) of HCFC-22 and 51.2% of CFC-115. When formulated in those proportions these chemicals take on the characteristics of a single refrigerant. Combinations of chemicals that act as a single

refrigerant are called azeotropes. Azeotropes are designated by a three digit number beginning with the number “5”, such as R-502.

Combinations of chemicals that maintain some of their original characteristics are called zeotropes. For example, unlike single refrigerants and azeotropes, which boil at a single temperature, zeotropes boil over a range of temperatures determined by the boiling points of their individual components. A zeotrope is also sometimes referred to as a blend. Zeotropes are designated by a three digit number beginning with the number “4”. The designation ends with a letter to differentiate between compositions of the same chemicals such as in R-401A.

The below chart details the refrigerant, chemical name, CAS number and UN# wherever applicable:

Refrigerant	Chemical Name	CAS number	UN #
11	trichlorofluoromethane (CCl_3F)	75-69-4	N/A
12	dichlorodifluoromethane (CCl_2F_2)	75-71-8	UN1028
13	chlorotrifluoromethane ($CClF_3$)	75-72-9	UN1022
22	chlorodifluoromethane ($CHClF_2$)	75-45-6	UN1018
23	trifluoromethane (CHF_3)	75-46-7	UN1984
113	1,1,2-trichloro-1,2,2-trifluoroethane (CCl_2FCClF_2)	76-13-1	N/A
114	1,2-dichloro-1,1,2,2-tetrafluoroethane ($CClF_2CClF_2$)	76-14-2	UN1958
123	2,2-dichloro-1,1,1-trifluoroethane ($CHCl_2CF_3$)	306-83-2	N/A
134a	1,1,1,2-tetrafluoroethane (CH_2FCF_3)	811-97-2	UN1956
401A	(53/13/34) chlrodifluoromethane/1,1-difluoroethane/2-chloro-1,1,1,2-tetrafluoroethane	N/A	UN1956
401B	(61/11/28) chlorodifluoromethane/1,1-difluoroethane/2-chloro-1,1,1,2-tetrafluoroethane	N/A	UN1956
402A	(60/2/38) pentafluoroethane/propane/chlorodifluoromethane	N/A	UN1956
402B	(38/2/60) pentafluoroethane/propane/chlorodifluoromethane	N/A	UN1956
404A	(44/52/4) pentafluoroethane/1,1,1-trifluoroethane/1,1,1,2-tetrafluoroethane	N/A	UN1956
406A	(55/4/41) chlorodifluoromethane/2-methyl propane (isobutene)/1-chloro-1,1-difluoroethane	N/A	UN1956
407C	(23/25/52) difluoromethane (methlyene fluoride)/pentafluoroethane/1,1,1,2-tetrafluoroethane	N/A	UN1956
408A	(7/46/47) pentafluoroethane/1,1,1-trifluoroethane/chlorodifluoromethane	N/A	UN1956
409A	(60/25/15) chlorodifluoromethane/2-chloro 1,1,1,2-tetrafluoroethane/1-chloro-1,1-difluoroethane	N/A	UN1956
410A	(50/50) difluoromethane (methylene fluoride)/pentafluoroethane	N/A	UN1956
500	(73.8/26.2) dichlorodifluoromethane/1,1-difluoroethane	N/A	UN2602
502	(48.8/51.2) chlorodifluoromethane/chloropentafluoroethane	N/A	UN1973
503	(40.1/59.9) trifluoromethane/chlorotrifluoromethane	N/A	UN2599
507	(50/50) pentafluoroethane/1,1,1-trifluoroethane	N/A	UN1956

C-10.3 Physical and Environmental Properties of Refrigerants

Even small changes in the makeup of these refrigerants can make a large difference in their physical and environmental properties. The following table shows some thermophysical and environmental properties of some common refrigerants.

Refrigerant	Boiling Point (ºF)	Specific Heat @ 86ºF (Btu/lb. ºF)	ODP	GWP	Atmospheric life (years)
R-11	74.7	0.21	1.000	4600	45
R-12	-21.6	0.24	.82	10600	100
R-22	-41.4	0.31	0.034	1900	11.8
R-123	82.0	0.21	0.012	120	1.4
R-134a	-15.0	0.36	0	1600	13.6
R-404A	-51.9	0.37	0	4540	(13.6-53.5)
R-410A	-60.9	0.41	0	2340	(5.6-32.6)
R-502	-49.5	0.30	0.221	6200	(11.8-1700)
R-507	-52.8	0.35	0	4600	(32.6-53.5)

C-10.4 Health and Safety Considerations

Many chemicals, including refrigerants, can be harmful if used improperly. Three important categories of health and safety concerns are toxicity, flammability, and O_2 displacement (asphyxiation hazard).

An international group of refrigerant manufacturers, through the Program for Alternative Fluorocarbon Toxicity (PAFT) testing, have conducted extensive toxicology tests on some HCFC and HFC refrigerants. With these results, manufacturers have recommended concentrations that humans can tolerate for a given time without harmful effects, called Allowable Exposure Limits (AELs). These values are given in parts per million (PPM), indicating the maximum amount of refrigerant that can be safely tolerated. Other toxicity indicators include Threshold Limit Values (TLVs) and Permissible Exposure Levels (PEL) values. Refrigerant manufacturers indicate the AEL, TLV, and PEL of a refrigerant on the Materials Safety Data Sheet (MSDS). ASHRAE Standard 34, *Number Designation and Safety Classification of Refrigerants*, classifies toxicity into two groups:

Class A: Refrigerants with low toxicity, with a weighted TLV over time higher than 400 PPM. That is, only concentrations over 400 PPM, over sustained periods of time are of concern.

Class B: Refrigerants with higher toxicity with a weighted TLV over time lower than 400 PPM.

Flammability, the ability of a chemical to support combustion, is also measured in a laboratory. Refrigerants are generally classified as being non-flammable, of low flammability, or high flammability.

ASHRAE Standard 34 assigns each refrigerant into one of three flammability groups. There are various scientific definitions for these groups, but generally they can be categorized as:

Group 1: No flammability
Group 2: Low flammability
Group 3: High flammability

By combining toxicity and flammability criteria, a matrix is obtained which classifies a refrigerant into class A1, A2, A3, B1, B2, or B3.

	A	B
3	R-600a (isobutane) R-290 (propane)	R-1140 (vinyl chloride)
2	HFC-32 HFC-143a HFC-152a	R-717 (ammonia)
1	CFC-11 CFC-12 HCFC-22 HFC-125 HFC-134a	HCFC-123

ASHRAE 34 Matrix with Some Refrigerant Examples

ASHRAE Standard 15, 1994, *Safety Code for Mechanical Refrigeration* treats the subject of how refrigerants that have been classified in ASHRAE Standard 34 may be used. It points out the need for refrigerant vapor sensors and self-contained breathing apparatus in certain situations because all fluorocarbon refrigerants are heavier than air and can cause asphyxiation.

CFCs and Ozone Depletion

The theory linking chlorofluorocarbons (CFCs) to stratospheric ozone depletion and environmental concerns was first proposed in the 1970s. Scientific studies provided an understanding of the chemical processes and physical mechanisms. Mathematical models predicted the effects of ozone-depleting substances (ODS) released into the atmosphere and transported by air currents to the stratosphere. The models predicted that continued use of these substances would lead to substantial ozone depletion in the next 50 to 100 years.

The stratospheric ozone layer protects the earth's surface from excessive quantities of harmful ultraviolet (UV-B) radiation. After evaluating scientific evidence, an international consensus resolved that certain identified volatile man-made, chemical substances containing chlorine and bromine are causing the depletion of the thin, fragile ozone layer. The conclusion was to reduce these releases and restrict their use.

ODS chemicals are widely used in many processes and products. Previously, ODS were used as refrigerants in buildings, household appliances, and automobiles; as foam blowing agents for insulation; as degreasers for metals and as propellants in containers. Currently, existing equipment, which utilizes CFCs, can continue to be used. New refrigerant equipment, however, is designed to use CFC alternative refrigerants, which minimize or eliminate their ODP.

There are several exemptions to the continued use of CFCs. The largest "essential use" exemption authorized under the Montreal Protocol includes medical devices such as metered-dose inhalers used in the treatment of asthma. List of common substances regulated by the Montreal Protocol.

Common Substances Covered by the Montreal Protocol and Amendments

CLASS I - CFCs	CLASS II - HCFCs
CFC-11*	HCFC-22*
CFC-12*	HCFC-123*
CFC-13	HCFC-124*
CFC-111	HCFC-141
CFC-112	HCFC-142
CFC-113	
CFC-114	
CFC-115*	Others
	Carbon Tetrachloride
Halons	Methyl Chloroform
Halon-1211	Methyl Bromide
Halon-1301	
Halon-1202	

*NOTE: These chemicals are used extensively, either alone or in a blend, for air-conditioning and refrigeration applications.

Environmental Concerns

The environmental concerns associated with refrigerants fall into two categories: stratospheric ozone depletion and global warming or climate change. CFC and HCFC refrigerants contain chlorine which, when released into the stratosphere – an upper layer of the atmosphere, depletes the ozone layer.

As stratospheric ozone depletion occurs, the quantity of UV-B radiation reaching the earth's surface increases. The ozone levels in the stratosphere also vary naturally due

to climate, latitude, and airborne particles but ozone depleting chemical emissions would reduce the mean levels.

This radiation increase results in potential health and environmental risks including increased incidents of certain skin cancers and eye cataracts, suppression of the body's immune system, damage to plants and food crops, and reduced aquatic life growth. Radiation also causes an increased weathering of man-made plastic and rubber products.

Scientific research on ozone depletion is advanced enough that Congress and EPA have required Safeway to take action. EPA has concluded that the emission of certain man-made "greenhouse" gases (many refrigerants are greenhouse gases) contributes to global warming by collecting and holding in the earth's heat that would normally radiate out into space, causing the temperature in the atmosphere to rise and other effects on climate. Climate change could cause a number of effects including damage to crops, or even the melting of polar ice caps. Scientists agree that we must consider not only the refrigerants' direct impact on global warming, but also the indirect impacts, such as the impacts of using a refrigerant that results in a chiller that is less energy efficient. Such an occurrence causes higher emissions of carbon dioxide, which is also a greenhouse gas and in this way also affects global warming.

U.S. Federal Rules and Regulations

D-10.1 Objective

To detail the U.S. Federal regulatory requirements which affect Safeway's operations in the performance of service work, maintenance, repair, or disposal of air-conditioning or refrigeration equipment. It is the responsibility of each site to obtain and comply with state and local regulations.

D-10.2 Summary of 40 CFR Part 82 Requirements

- ☑ Requires service practices that maximize recycling of ozone-depleting compounds (both chlorofluorocarbons [CFCs] and hydrochlorofluorocarbons [HCFCs] and their alternatives) during the servicing and disposal of air-conditioning and refrigeration equipment.
- ☑ Prohibits the knowing release of refrigerants or non-exempt substitutes during maintenance, service, repair, or disposal of appliances.
- ☑ Sets certification requirements for recovery and recycling equipment.
- ☑ Restricts the sale of refrigerant so that it is only sold to certified technicians and appliance manufacturers.
- ☑ Requires persons servicing or disposing of air-conditioning and refrigeration equipment to certify to the EPA on OMB Form #2060-0256 that they have acquired recycling or recovery equipment and are complying with the requirements of the rule.

- ☑ Requires the repair of substantial leaks in air-conditioning and refrigeration equipment with a charge of greater than 50 pounds.
- ☑ Establishes safe disposal requirements to ensure removal of refrigerants from goods that may enter the waste stream with the charge intact (e.g., motor vehicle air conditioners, home refrigerators, and room air conditioners).
- ☑ Sets certification for technicians and reclaimers.

Enforcement Authority

D-20.1 External Enforcement of Violations

Any violation of the Clean Air Act may result in civil or criminal action against the individual and the company. Any conviction or penalties assessed for a violation of any state or local provision will be the responsibility of the named individual and his or her site.

Federal environmental laws provide various enforcement options that the EPA and state agencies can take against alleged violators.

The specific provisions for civil and criminal penalties vary according to the statute. Fines can range up to $37,500 per day per violation and prison terms can extend from one to 5 years for a violation. If a company is found to have violated the law in a civil action, it may suffer adverse publicity in addition to substantial financial penalties. In criminal cases, in addition to the potential for financial penalties to be imposed on a company in violation of the law, individual managers and officers of the company may face prosecution and imprisonment. Senior managers of the company, even if they are not directly involved in the alleged violations, could be subject to prosecution. This may occur if such managers consciously screened themselves from a matter that they had the power to prevent or correct.

In addition, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) imposes “no fault” liability on site owners, operators, generators responsible for the release, threatened release or any failure to notify the National Response Center of a release of a listed hazardous substances in more than a reportable quantity. Some ODCs and their alternatives may be listed by CERCLA.

D-20.2 Types of Enforcement Actions

This plan is based on enforcement activities generally taken by the EPA. States generally have similar enforcement techniques. There are four basic types of enforcement actions, differing in severity and in the amount of agency resources required. In order of increasing severity, these actions are the following:

Informal Administrative Actions

Informal administrative actions are advisory in nature, such as a notices of noncompliance or warning letters from the agency. In such an action, the EPA will provide notice of the alleged violation to the site, define required corrective measures and set a deadline for compliance. If the site fails to comply, the EPA may institute more severe actions.

Formal Administrative Actions
Formal administrative actions take the form of legal orders. They require the alleged violator to take corrective action within a specified period and to refrain from certain behavior, and order future compliance. Fines also may be imposed through an administrative action. The EPA uses administrative actions extensively in environmental programs that provide authority for them. The EPA handles such administrative actions through its internal administrative litigation system. This system is similar to any court system, with the exception that the EPA's administrative law judges (ALJs) preside over it. You may appeal an ALJ's ruling to the EPA administrator and the administrator's final decision to federal court.

Civil Actions
Civil actions frequently take the form of lawsuits initiated by the U.S. Department of Justice (DOJ) at the EPA's request. The EPA normally uses civil judicial actions against the more serious violators or to enforce corrective actions of imminent hazards. These suits generally result in monetary penalties and court orders requiring corrective or remedial actions or specific actions to prevent future violations.

Criminal Prosecution
Criminal actions are initiated by DOJ at the request of the EPA against an alleged violator, and seek criminal sanctions including fines and imprisonment. The EPA uses criminal actions to respond to flagrant, intentional disregard of applicable law. *In addition, the CAA gives the EPA authority to pursue criminal actions in response to deliberate falsification of documents or records and knowing and willful violations*.

D-20.3 Enforcement Authority Under the Clean Air Act

The EPA, and states where applicable, generally receives its enforcement authority from the particular statute being enforced. The Clean Air Act is the federal regulation of the greatest concern to managers in charge of refrigerant compliance.

The Clean Air Act authorizes a nationwide program to reduce air pollution through air quality planning, regulation, enforcement, and research. The act consists of a series of interrelated programs designed to protect health and the public welfare from emissions polluting the ambient air. Subchapter VI of the CAA "Stratospheric Ozone Protection" contains the provisions regarding refrigerants that are Class I and II ozone depleting substances.

Administrative Penalties
The CAA gives the EPA the Authority to issue administrative orders assessing civil administrative penalties of up to $37,500 per day of violation whenever EPA finds that a

company has violated or is violating air regulations, including Stratospheric ozone protection requirements.

Civil Actions
Under the CAA, the EPA may initiate civil actions in court to obtain injunctive relief requiring the violator to achieve compliance and to recover penalties in amounts up to $37,500 per day per violation.

Criminal Actions
The EPA may bring criminal actions for knowing violations, which may result in a substantial fines and imprisonment.

Knowingly making false statements or representations in records or reports required under the CAA, or knowingly failing to notify or report might be punishable by fine and imprisonment up to two years.

Under the CAA, federal agencies cannot contract to procure goods, materials and services with a person convicted of a criminal offense if that contract will be performed at the facility at which the violation that gave rise to the conviction occurred, and the convicted person owns, leases or supervises the facility. If the court convicts the site owner for criminal violation of a provision, or any other federal air standard or order, listing of the firm is mandatory and automatic. The EPA might also extend the prohibition to other facilities owned or operated by the convicted person. Removal from the list requires certification by the EPA that the violator has corrected the conditions giving rise to the listing.

Significant New Alternatives Program

D-30.1 Background

Under authority of Section 612 of the Clean Air Act (CAA), regulations promulgated on March 18, 1994, effective April 18, 1994, the EPA has established a program in which they will evaluate applications for use of substitute chemicals and technology to replace ozone depleters in specific uses.

D-30.2 EPA's Significant New Alternatives Program (SNAP) Rule

☑ SNAP requires the manufacturer or importer of a proposed substitute for an ozone-depleting chemical to provide the EPA notification 90 days before introducing the substitute into interstate commerce. During the 90-day period, the EPA will evaluate company studies and other information and decide whether the substitute is either acceptable or unacceptable for a specific use, based on whether the substance may have adverse effects on human health or the environment. Some of the criteria the EPA will consider in the risk screening include flammability, chemical toxicity, global warming potential and exposure of workers, consumers, the general population and aquatic life.

☑ If the EPA places a substance on the unacceptable list, it becomes unlawful to use it as a substitute for an ozone depleter.

Obtain a current SNAP list and keep the list updated by contacting the EPA Hot line at 800-296-1996 or print directly from the EPA web site http://www.epa.gov/ozone/title6/snap.

Glossary

Acute effects	Detrimental health effects resulting from a single, short-term exposure to a toxic substance, as might occur during an accidental release of refrigerants.
Alkylbenzene	A lubricant synthesized from the raw materials propylene and benzene. Used often when incorporating HCFC-based refrigerant blends. Some HCFC-based blends are soluble in a mixture of mineral oil and alkylbenzene up to a 20 percent concentration of mineral oil.
Allowable exposure limit (AEL)	Acceptable concentration levels in air, which are deemed safe for repeated occupational exposure without chronic effects. The chemical producer normally recommends this level.
Appliance	Any device which contains and uses a class I or class II substance as a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer.
Approved equipment testing organization	Any organization which has applied for and received EPA approval
Azeotrope	A mixture of two or more liquids which, when mixed in precise proportions, behave like a compound when phase changing from liquid to gas (evaporating) and gas to liquid (condensing). These blends do not change volumetric composition or saturation temperature as they evaporate or condense at constant pressures. The boiling point of the mixture will be either above or below the boiling point of the individual liquids.
Certified refrigerant recycling or recovery equipment	Equipment certified by an approved equipment-testing organization to meet EPA standards. Currently ARI for stationary equipment and UL for automotive equipment
Chlorofluorocarbon	A chemical compound consisting of one or more carbon

(CFC)	atoms surrounded by chlorine and fluorine atoms. CFCs are used as refrigerants, foam-blowing agents, aerosol propellants, cleaning agents, and in other applications.
Comfort cooling	Cooling equipment with 50 or more pounds of refrigerant used for comfort or space cooling, usually through an air handler.
Commercial refrigeration	Refrigeration equipment with 50 or more pounds of refrigerant utilized in the retail food and cold storage warehouse sectors.
Containment	The application of service techniques or special equipment designed to preclude or reduce loss of refrigerant from equipment during installation, operation, service and/or disposal of refrigeration and air conditioning equipment.
Containment equipment	Equipment specifically designed to assist in precluding or reducing refrigerant losses during installation, operation, servicing or disposal of refrigerant equipment. Recovery/recycling equipment, low loss fittings, PRVS, refrigerant leak alarms and ultra-high efficiency purge units are all examples of containment equipment.
Disposable container	A container (cylinder or drum) used to ship new refrigerant, which is not approved by the DOT for reuse after its initial contents are used.
Disposal	Any process leading to and including the discharge, deposit, dumping, or placing of any discarded appliance or component parts into or on any land or water.
Ester oil	Any of a class of organic compounds corresponding to the inorganic salts formed from an acid by the replacement of hydrogen by an alkyl radical.
Fluorescent dyes	These are dyes, which can be put into the lubricant. When there are leaks present, these dyes stain the outside of the chiller showing the location of high rate leaks.
Fractionation	The condition when one or more refrigerants of a blend leak at a faster rate than other refrigerants in the blend.
Global warming	Tropospheric pollutants, like CFCs, HCFCs, HFCs, carbon dioxide, and carbon monoxide, absorb and reflect the earth's infrared radiation, causing re-radiation back to the earth which results in a gradual increase in the earth's average

	temperature.
Halide torch	Propane powered torch whose flame changes color when small amounts of refrigerant pass through it. It can be used to detect leaks of chlorine containing refrigerant.
Halocarbons	Stable chemical compounds consisting of one or more carbon atoms surrounded by halogen atoms or a combination of hydrogen and halogen atoms. CFCs, HCFCs, HFCs are all halocarbons.
Halogens	Reactive chemical elements with the ability to form one chemical bond in a molecule. Common halogens are fluorine (F), Chlorine (Cl), Bromine (Br), and Iodine (I).
Halon	A bromochlorofluorocarbon (BCFC), a chemical consisting of one or more carbon atoms surrounded by fluorine, chlorine and bromine. Halons are commonly used as flame suppression.
High-pressure appliance	An appliance, which uses a refrigerant with a boiling point between -50 C and 10 C at atmospheric pressure.
Hydrocarbon	A chemical compound consisting of one or more carbon atoms surrounded only by hydrogen atoms. Methane, ethane, butane and propane are all examples of hydrocarbon. Many hydrocarbons have excellent thermodynamic properties. Although they may be used as refrigerants, their highly flammable properties normally restrict their use as low concentration components in refrigerant blends.
Hydrochlorofluorocarbon (HCFC)	A chemical consisting of usually one or more carbon atoms surrounded by chlorine, fluorine, and at least one hydrogen atom. HCFCs are used as refrigerants, foam-blowing agents, and in other applications.
Hydrofluoro-carbon (HFC)	A chemical consisting of usually one or more carbon atoms surrounded by fluorine and hydrogen atoms. Since no chlorine or bromine is present, HFCs do not deplete the ozone layer.
Industrial process refrigeration	Complex, customized appliances directly linked to production of a product or part of the process involved in making the product. Commonly found in the in the chemical, pharmaceutical, petrochemical, and manufacturing industries. (Computer rooms are not considered industrial process

	refrigeration
Leak	A leak is an event where refrigerant gas is released from the refrigerant-containing appliance intentionally, accidentally, or from equipment or piping failures. Each separate leak is considered a unique event and is not additive to other leaks in other locations on the refrigerant containing appliance or systems for purposes of calculating leak rates.
Long-term chronic effects	Detrimental health effects from long term repeated exposures to low level toxic materials, generally assessed over the lifetime of test animals to gauge the late-in-life signs of toxicity.
Low-pressure appliance	An appliance that uses a refrigerant with a boiling point above 10 C at atmospheric pressure.
Lubricant compatibility	For CFCs and HCFCs: mineral oils For HFC-134a: polyolesters For HCFC ternary blends: alkylbenzenes
Materials Safety Data Sheet (MSDS)	A safety advisory bulletin prepared by chemical producers for a specific refrigerant or compound.
Montreal Protocol	An international agreement limiting the production and consumption of chemicals that deplete the ozone layer, including CFCs, HCFCs, BCFCs, HBFCs and others.
Near-azeotropic	A blend, which acts very similarly to an azeotrope, yet has a small volumetric composition change and temperature glide as it evaporates and condenses.
Non-condensable gases	Gases with very low temperature boiling points, which are not easily condensed. Nitrogen and oxygen are the most common ones found in chillers.
Oil monitor	This device uses an infrared sensor to determine when the circulating oil needs to be changed. It is not necessary to take an oil sample using this device, which is permanently attached to the chiller.
Ozone depletion	A condition which results when chlorine molecules broken away from CFC and HCFC refrigerants by ultraviolet radiation in the stratosphere react with and destroy stratospheric ozone, a layer in the atmosphere which protects the earth

	from the sun's harmful ultraviolet radiation.
Ozone depletion potential (ODP)	A measure of a chemical's ability to deplete ozone measured on a scale relative to a value of 1.0 assigned to CFC-11.
Ozone layer	An area of the atmosphere, approximately 15 to 60 kilometers (9 to 38 miles) above the earth, where ozone is found as a trace gas (at higher concentrations than other parts of the atmosphere).
Ozone (O_3)	A reactive gas consisting of three oxygen atoms, formed naturally in the atmosphere by the association of molecular oxygen (O_2) and atomic oxygen (O).
PAFT	Program for Alternative Fluorocarbon Toxicity.
Permissible exposure level (PEL)	Time-weighted concentration levels that must not be exceeded during any eight-hour workweek. The U.S. Occupational Safety and Health Administration (OSHA) set PEL values.
Polyolesters (POE)	Stable, five-carbon neopentyl alcohols mixed with fatty acids. A popular synthetic lubricant for use with HFC refrigerants. Used as a jet engine lubricant for years.
Purge system	A device used on low-pressure chillers to expel air and other non-condensables from the circulating refrigerant.
Refillable container	A container used to ship and store refrigerant. Refillable containers are designed to be used over and over again, but should be retested at least every five years.
Refrigerant monitors	Devices, which can detect small amount of refrigerant in the air.
Relief valve	This is a device, which vents refrigerant when the pressure in a chiller becomes dangerously high. Newer relief valves have a resealing mechanism so that when the pressure of the chiller returns to a normal level they reseal and prevent further refrigerant loss.
Replacement	The conversion of an air conditioning or refrigeration system to an alternative refrigerant, which requires the removal of the existing chiller and installation of a completely new chiller.
Retrofit	The conversion of an air conditioning or refrigeration system to an alternative refrigerant. Unlike a replacement, only parts of components of the existing system may need to be

	replaced.
Simple retrofit	A conversion to an alternative refrigerant, which only requires the change out of a few incompatible parts, typically gaskets. Simple retrofits typically result in some decrease in either efficiency, capacity or both.
System-dependent recovery equipment	Refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from an appliance.
System optimization or engineered retrofit	A conversion to an alternative refrigerant, which includes the replacement of system components with new components that have been redesigned specifically for the alternative refrigerant. System optimized or engineered retrofits typically include redesigned impellers, drive gears or heat exchangers.
Technician	Any person who performs maintenance, service, or repair who could reasonably be expected to release class I or class II substances from appliances into the atmosphere, including but not limited to installers, contractor employees, in-house service personnel, and in some cases owners.
Temperature glide	Range of condensing or evaporating temperatures for one pressure.
Ternary	Having three elements, parts, or divisions.
Threshold limit value (TLV)	An inhalation time weighted average exposure level safety limit normally established by the American Conference of Governmental and Industrial Hygienists (ACGIH).
Venting	A service practice where the refrigerant vapor is allowed to escape into the atmosphere after the refrigerant liquid has been recovered. This practice is no longer acceptable.
Very-high Pressure Appliance	An appliance that uses a refrigerant with a boiling point below -50 C at atmospheric pressure.
Zeotrope	A refrigerant blend that changes volumetric composition and saturation temperatures as it evaporates or condenses at constant pressures. Has a temperature glide as it evaporates and condenses. Zeotrope and non-azeotrope are synonyms.

References

UNITED STATES CODES

- Title 42, The Public Health and Welfare
  Chapter 85 - Air Pollution Prevention and Control
  Subchapter VI - Stratospheric Ozone Protection, Para. #7671

- Title 26, Internal Revenue Code
  Chapter 38 - Environmental Taxes
  Subchapter D - Ozone-depleting Chemicals, etc., Para. #4682

FEDERAL AGENCY REGULATIONS

- 49 Code Federal Regulation, Parts 100-177

- Title 29, Labor

  Subtitle B Regulations Relating to Labor
  Chapter XVII - Occupational Safety and Health Administration
  Part 1910/1926 - Occupational Safety and Administration Standards
  Subpart Z - Toxic and Hazardous Substances

- Title 40, Protection of Environment

  Chapter 1 - Environmental Protection Agency
  Part 82 - Protection of Stratospheric Ozone

  Subchapter I - Solid Waste
  Part 260 - Hazardous Waste Management System: General
  Part 261 - Identification and Listing of Hazardous Waste
  Part 262 - Standards Applicable to Generators of Hazardous Waste
  Part 266 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

- Title 49, Transportation
  Chapter 1 - Research and Special Program Administration
  Subchapter C - Hazardous Materials Regulations Parts 171-180 (Regulations for Shippers, Carriers, and Packagers)

NATIONAL STANDARDS OR GUIDELINES (Use Current Edition)

- American Society of Heating, Air Conditioning, and Refrigerating Engineers (ASHRAE)

3-90 Reducing Emissions of Fully Halogenated Chlorofluorocarbon Refrigerants in Refrigeration and Air Conditioning Equipment and Applications

15 Safety Code for Mechanical Refrigeration

34 Number Designation and Safety Classification of Refrigerants

- Air Conditioning & Refrigeration Institute (ARI) Standards

700 Specifications for Fluorocarbon Refrigerants

740 Performance of Refrigerant Recovery, Recycling and/or Reclaim Equipment

K Guideline K Containers for Recovered Fluorocarbon Refrigerants

N Guideline N Assignment of Refrigerant Container Colors

-- Directory of Certified Refrigerant Recovery/Recycling Equipment

- General Electric (GE)

-- Proposed Method for Testing Recovery Devices for Use with Small Equipment

WEB SITES

Environmental Protection Agency Title VI (EPA)	www.epa.gov/ozone/title6
Department of Transportation (DOT)	www.dot.gov
American Society of Heating, Air Conditioning, and Refrigerating Engineers (ASHRAE)	www.ashrae.org
Air Conditioning Heating & Refrigeration Institute (ARI)	www.ahri.org
National Fire Protection Association (NFPA)	www.nfpa.org
Environmental Support Solutions (ESS)	www.environ.com